OneFarm
Ko te Toi Whakahaere Pakihi Ahuwhenua
Centre of Excellence in Farm Business Management

How dairy consultants help farmers design improved farming systems?

Dr David Gray[1]

Dr Elizabeth Kemp[1]

Dr Janet Reid[1]

Dr Victoria Westbrooke[2]

July 2014

[1] Massey University

[2] Lincoln University

Lincoln University
Te Whare Wānaka o Aoraki
CHRISTCHURCH·NEW ZEALAND

MASSEY UNIVERSITY
TE KUNENGA KI PŪREHUROA
UNIVERSITY OF NEW ZEALAND

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Date submitted to DairyNZ: September, 2014

This report has been funded by New Zealand dairy farmers through DairyNZ and the Ministry for Primary Industries through the Primary Growth Partnership.

Ministry for Primary Industries
Manatū Ahu Matua

DairyNZ

Abstract

There is concern in the farm management consultancy field about the aging population of consultants and the lack of succession planning. One of the factors constraining the employment of new consultants is the time and cost required to train new consultants. To help overcome this problem, DairyNZ have developed a training programme for new consultants based around the whole farm assessment process they use with their Consulting Officers. The aim of the programme is to improve the capability of novice consultants such that they become proficient more quickly and as such reduce the high training cost of new recruits. One important source of knowledge that would be useful for this training programme, is the knowledge held by experienced farm management consultants. However, little research has been undertaken on the practices of New Zealand farm management consultants to date. This study will initiate a programme of research into the practices of "expert" farm management consultants that will provide material for the further development and refinement of the DairyNZ programme.

The objective of the study was to investigate the problem solving processes used by "expert" farm management consultants. A single-case study approach was adopted and a specialist dairy consultant with twenty years consultancy experience, who was recognised as an expert by the industry was selected for the study. Prior to the data collection phase a review of the literature was undertaken on consultancy and problem solving in particular. The literature review also covered material in relation to learning and the training of novice consultants. A semi-structured interview protocol was designed based on the literature review. The consultant was interviewed about the consultancy process normally used during the first visit to a new client. Three one and a half hour interviews were used to collect data on the consultancy process and how he diagnosed and solved the problems for a new client. The final interview investigated the consultant's views about how one should go about training a novice consultant. The data was analysed using a qualitative data analysis technique and once analysed, the results were compared to the literature.

The objective of this study was to investigate the problem solving processes used by "expert" farm management consultants to provide insights that might assist with the training of novices. The consultant identified three important areas in terms of the capability of farm management consultants. These were: 1) interpersonal communication skills, 2) an ability to think holistically or systemically in relation to farming systems and 3) analytical ability. The consultant believed that interpersonal communication skills were the most important skills and also the most difficult to learn. This study also highlighted the importance of the client recruitment process in consultancy and the role that social capital played in this process, something not previously reported in other New Zealand studies. The consultant actively builds networks to obtain access to resources and in particular, new clients. Interpersonal communication skills play an important role in the building of these networks. The consultant uses his existing networks of clients and rural professionals to provide him with referrals to obtain new clients. Such referrals rely heavily on his professional reputation, something a novice consultant does not possess.

The consultant also actively builds networks with non-client farmers through attendance at discussion group meetings and a plethora of farmer meetings and events. At these forums, the consultant uses his rapport building skills to secure an invitation to visit a potential client. The consultant argued that "cold calling" was a poor means of recruiting new clients, but that a "warm call" where a potential client invites him out to the farm, had a 70 – 80% success rate. As such, it is critical that a novice consultant has time to build networks with non-client farmers. DairyNZ could play a critical role in this process by allowing novices access to discussion group meetings.

The study highlighted that the consultant used a non-fee charging "engagement visit" to secure a new client, something not previously reported in the literature. This could be a useful process that a novice consultant might use to expand their client base. Although not a focus of the research, the study highlighted the importance of rapport building from a consultancy perspective. This is a critical skill for novice consultants and an area that is not covered in the Whole Farm Assessment and Planning process. It is important for: 1) building networks, 2) securing and then retaining a new client, 3) positioning the consultant within the relationship circle such that a comfortable and relaxed working relationship develops which is important for obtaining sensitive information required for effective problem solving.

Information gathering was a key process used by the consultant with semi-structured interviewing playing a central role. However, documents and observation were also important sources of information. The consultant provided some insights into how the problem of information overload faced by novice consultants might be reduced. He used problem types to prioritise the information he collected on a first consultancy visit. These problem types were: 1) seasonal problems, 2) district problems, 3) problems identified by the client and 4) problems diagnosed by the consultant. This highlighted the role that mental schema and checklists played in the consultant's information gathering process. It may be possible that such schema or checklists could be developed in-house for a consultancy firm. Triangulation of information was another important skill the consultant stressed during the information collection process. Four types of triangulation were identified: 1) temporal triangulation, 2) triangulation by information source, 3) triangulation of the client's perceptions of the state of farm resources with the observed state, and 4) triangulation of client perceptions of behaviour and observed client behaviour. Given this was a problem area for the WFAP process, this could be a useful area for further research, particularly in terms of what expert consultants are observing during a visit.

The focus of the Whole Farm Assessment and Planning process is information gathering, however, the study highlighted that although important, it is how that information is processed that is the critical aspect of consultancy. The consultant used benchmarking and comparative analysis to classify the client, farm family and farm business and this classification process was central to problem solving. Classification was used to: 1) build a mental picture of the farm family and business, 2) identify constraints, 3) specify strengths and weaknesses, 4) diagnose problems (or opportunities) and 5) tailor solutions to the client's specific situation. As such, processes that can help a novice consultant with the classification of information will be an important addition to the Whole Farm Assessment and Planning process.

The consultant used a range of classification techniques that varied in the level of complexity to limit the scope of his problem search when diagnosing problems for a new client. Normally, parameters for the client, farm family and farming system were compared to benchmarks or industry standards and then classified. If these were classified as a negative deviation from the benchmark or industry standard, then this identified a potential problem type. Using his mental schema associated with his problem classification process, the consultant could hypothesise the cause of the problem. Each problem type had a set of indicators that the consultant used to diagnose the exact nature of the problem. Each indicator had a set of symptoms or relevant cues which the consultant collected information about to confirm or refute the existence of the problem and the cause of the problem. The consultant also uses the classification of a problem type to identify opportunities for introducing new technologies for improving the performance of the farm business. At a high level, the consultant classified personal constraints to the farm business. These included: 1) knowledge gaps, 2) attitude problems and 3) social norms. Each of these different problem types requires a different problem solving approach. These classification schemas could be developed to help novice consultants in relation to improving their diagnostic processes.

The classification process also plays an important role in solution generation and the tailoring of solutions to a client's specific situation. Each problem type has a set of possible solutions. Each solution has a set of attributes or aspects. The consultant uses the goals, preferences and constraints he has identified earlier in the visit to screen the solution set and select the solution most appropriate for the client. This process is similar to choice making process "elimination by aspect". Again, it may be useful to develop such solution sets and the respective aspects for the various solutions so that they could be used by novice consultants.

This study identified that the consultant had five important networks that he used to obtain information, knowledge and resources. These were: 1) farmer clients, 2) non-client farmers, 3) farm management consultants, 4) other rural professionals and 5) scientists and academics. Most of the networks in which the consultant operates are distributed networks that are linked by either bonding or bridging social capital. This includes his network of work colleagues and peers in the farm management consultancy field, i.e. his community of practice (CoP) that is linked by bonding social capital. It also includes his network of rural professionals that he interacts with or his network of practice (NoP) that are also linked by bridging social capital. The consultant's farmer networks (client and non-client) are also distributed networks that are linked by bridging social capital. The consultant mentioned that he obtained useful information and knowledge from his CoP and NoP. The consultant actively expands his NoP through his attendance at events because this provides him with access to not only information and knowledge, but also members of his NoP will refer clients to him. The consultant targets particular actors to expand his NoP in areas that are useful for his business. The consultant views his farmer networks as an important source of tacit knowledge about practice or what he called practical knowledge (know-how). They are also an important source of new clients.

The consultant proactively developed a decentralised network with linking social capital to access scientific knowledge. These networks were with scientists and academics and he spent time developing and maintaining these networks. He was also proactive in the selection of actors that he wanted within his network. His criteria for the selection of individuals within his decentralised network were that they had to provide knowledge that was useful for his consultancy business and that they provided objective and unbiased information about key areas in dairying. The consultant targeted actors in areas he was not particularly strong in (e.g. dairy nutrition) and he also targeted actors that were in emerging areas (e.g. environmental concerns around nutrient budgeting and nitrogen leaching). As such, the consultant's network was built around key people chosen on the basis of carefully thought out criteria, not organisations. Most of the information and knowledge the consultant obtained from his decentralised network of scientists and academics was used to develop his subject matter expertise. In some cases it also allowed him to provide his clients with a new service (e.g. nutrient budgeting and nutrient management advice). In relation to training novice consultants, the consultant stressed that it is critical for them to develop a network of resource people. If they do not do this, they will find consultancy quite difficult. He believed that novice consultants would struggle until they have developed such networks. The consultant identified a possible barrier to a novice consultant developing suitable networks was ensuring that the firm allowed him the time to do this. The study did find that the consultant's professional association played an important role in knowledge exchange encouraging both bonding, bridging and linking social capital.

The metacognitive skills of the consultant give him conscious control of the process being followed and the ability to adapt his approach if necessary. The scripts he follows (for the engagement and consultancy visits) provide the framework for his activities before, during and after a visit to a farm. The script for the first consultancy visit is more extensive (gather information, identify the problem, determine alternatives, analyse alternatives, choose an alternative and plan the implementation) than the engagement visit.

There are a wide range of activities that can assist a new consultant to become expert more quickly. They can take courses and attend seminars, conferences and field days, for instance. The consultant also suggested many other ways of helping trainees extend their knowledge and experience. Farm visits can be used as an opportunity to provide practical experience for the new consultants and allow them to exercise their reasoning skills in situ. Trainees should be exposed to a wide variety of situations including tough cases. Given the importance of rapport building and metacognitive skills as reported in this study, these too need to be emphasized and explicitly practiced. This study has also indicated that there are other specific abilities in the problem solving process that a trainee needs to practice e.g. financial analysis, questioning and listening, data triangulation and classification skills. Farm visits as well as exercises based on relevant material (from case studies and databases) can be used to further the development of such skills. Overall, trainees need to have a consultant who is able to act as a mentor as well as an exemplar and teacher. Any development programme has to be tailored to the goals and abilities of the new consultants.

Contents

Figures

Tables

1.0 Background

There is concern in the farm management consultancy field about the aging population of consultants and the lack of succession planning. One of the factors constraining the employment of new consultants is the time and cost required to train new consultants. Often it can take up to three years before a trainee consultant is proficient in the field. To help overcome this problem, DairyNZ have developed a training programme for new consultants based around the whole farm assessment process they use with their Consulting Officers. This programme is currently being piloted with seven consultancy firms across the country. The aim of the programme is to improve the capability of novice consultants such that they become proficient more quickly and as such reduce the high training cost of new recruits. One important source of knowledge that would be useful for this training programme, is the knowledge held by experienced farm management consultants. New Zealand has a pool of experienced farm management consultants with expertise in farm management consultancy. If this pool of expertise could be captured, it could then be passed on to novice farm management consultants to greatly enhance their capability. However, little research has been undertaken on the practices of New Zealand farm management consultants to date. This study will initiate a programme of research into the practices of "expert" farm management consultants that will provide material for the further development and refinement of the DairyNZ programme.

1.1 Research question

How do expert farm management consultants help dairy farmer clients to design improved farming systems?

2.0 Method

The objective of the study was to investigate the problem solving processes used by "expert" farm management consultants. A single-case study approach was adopted because it was considered the most appropriate method for collecting in-depth information about processes (O'Leary, 2005). The consultants were selected on the following criteria: specialist dairy consultant, at least twenty years consultancy experience, recognition as an expert in their field, and willingness to participate in the study. The consultant was a dairy consultant who specialised in both production and strategic management. Although recognised for his specialist areas, the consultants also provided general farm management advice. The consultant was an agricultural graduate and had 40 - 45 clients.

Prior to the data collection phase a review of the literature was undertaken on consultancy and problem solving in particular. The literature review also covered material in relation to learning and the training of novice consultants. A semi-structured interview protocol (Ritchie and Lewis, 2003; O'Leary, 2005) was designed based on the literature review. The consultant was interviewed about the consultancy process normally used during the first visit to a new client. Each interview lasted approximately one and a half hours. In total, four, one and a half hour interviews were conducted with the consultant. Three of these interviews focused on their consultancy process and how they diagnosed and solved the problems confronting a new client. The final interview investigated the consultant's views about how one should go about training a novice consultant. It had been hoped that the consultant could be observed undertaking a consultancy visit to a new client, but no new clients approached the consultant over the study period. Each interview was taped and the tape was transcribed. The data was analysed using a qualitative data analysis technique similar to that advocated by Dey (1993). A summary of the elicited information was sent to the consultants as a case report for verification. Once analysed, the case report was then compared and contrasted to findings reported in the literature.

3.0 Literature review

Several studies have investigated the consultancy process used by New Zealand farm management consultants (Rogers *et al*., 1996a,b, 1997; Williams *et al*., 1997a,b; Gray *et al*., 1999a,b, 2000; Kemp *et al*., 2002; Bruce 2013; Reid *et al*., 2013). These studies have investigated the processes used by both dairy and sheep and beef consultants, with some studies comparing cases from both industries. The research has focused on the processes used by expert farm management consultants during a first visit to a farmer client. As such, the findings are highly relevant to the Whole Farm Assessment tool developed by DairyNZ to help trainee consultants. Rogers *et al*. (1996b) identified that the consultancy process could be separated into two inter-dependent processes - rapport building and problem solving. Although rapport building is important for problem solving (Williams *et al*., 1997a,b; Gray *et al*., 1999a,b, 2000; Kemp *et al*., 2002), this review will focus on the problem solving process as this is the focus of the Whole Farm Assessment Process. It is also important to note that the initial study in this area (Rogers *et al*., 1996) drew on the farm management problem solving literature (Lee and Chastain, 1961; Johnson *et al*., 1961; Scoullar, 1975; Johnson, 1976) as the model around which their consultancy problem solving process was based. However, later authors have introduced other literature such as that from the naturalistic decision making literature. The authors of some of these studies also separated the consultants' processes into the physical phases of a client visit and the rapport building/ problem solving process. This section of the literature review will define the consultancy process, review the literature on the physical phases of a client visit, briefly review the literature on rapport building during a consultancy visit and finish with a review of the literature on problem solving by New Zealand farm management consultants.

3.1 Consultancy

Farm management consultants operate in a complex problem domain requiring the integration of knowledge from a wide range of disciplines (Gray *et al*., 1999a). Gray *et al*. (1999a) argued that the problem domain is complicated because a consultant is responsible for solving a client's problems, and in most cases the "*client*" is a farm family comprising several individuals. They also identified that a further difficulty facing consultants is that they practice in a commercial environment under time pressure, normally during a half-day visit, and the solutions often involve high stakes i.e. the performance of the client's business and the reputation of the consultant. Effective problem solving in such domains requires individuals with considerable knowledge and skills (Gray *et al*., 1999a). Rogers *et al*. (1996b) also highlighted that consultants solve other people's problems. As such, they are not the problem owner and normally they are not responsible for the implementation of the solution.

3.2 The consultancy process

Rogers *et al*. (1996b) and Gray *et al.* (1999a,b) separated the consultancy process into a physical process and a problem solving framework (Figure 1). A typical consultancy visit to a new client has been described as comprising three distinct physical phases: 1) pre-visit, 2) farm visit, and 3) post-farm visit (Rogers *et al*., 1996b; Gray *et al.*, 1999a,b). It is a general process that identifies the high level activities undertaken during a typical farm visit (Figure 1). However, the process may be adapted by the consultant in response to differences clients and the nature of the problem and the client (Rogers *et al.*, 1996b).

The pre-visit phase of the physical farm management consultancy process (Figure 1) is defined as the period from first contact with the client until the consultant arrives at the farm (Rogers *et al*., 1996b; Gray *et al.*, 1999a,b). The pre-visit phase begins with first contact, normally through a telephone call. The consultant may then undertake some form of pre-visit analysis of the client's farm business, and then on the way to the client's farm he will make observations of the area in which the client operates (Figure 1). During the telephone conversation the consultants obtained information about the issues the farmer wanted to discuss during the visit and they collected some preliminary information about the problem (Rogers et al., 1996b; Gray et al., 1999a,b, 2000). The amount of information collected at this stage varies across consultants (Gray et al., 2000) reported that three out of the six expert farm management consultants investigated in their study collected minimal information whereas the other three consultant in the study collected as much information as possible about the family, farmer and farm. After the phone conversation, the consultants may undertake some pre-visit analysis. However, the depth of this analysis varied between consultants (Rogers et al., 1996b; Gray et al., 1999a,b, 2000). Some consultants did minimal pre-visit analysis, while others would undertake a property valuation, analyse soil test data and soil maps along with an analysis of the last 3 – 5 years of accounts for the farm business (Rogers *et al*., 1996a,b; Gray *et al.*, 1999a,b, 2000). One of the consultants who did not undertake a lot of analysis prior to the visit argued that this could bias their view of what the problems were on the farm and as such, he minimised the amount of analysis he undertook. Bruce (2013) also identified that the expert sheep and beef consultant in her study would look at Landcare Research's S-map to see if the area where the client's farm is located has been soil mapped to identify the soil types on the farm.

Finally, on the drive to the client's property, the consultants would observe the area and the surrounding farms (Rogers *et al.*, 1996b; Gray *et al.*, 1999a,b, 2000).

The farm visit stage (Figure 1) of the consultancy process spans from arrival at, to departure from, the farm (Rogers *et al.*, 1996b). Normally upon arrival, the consultant would greet the farmer and undertake a preliminary "ice-breaking" conversation with them around the kitchen table. This might include conversation about general events and topics such as sport, the family and local events to develop trust and empathy with the client (Rogers *et al.*, 1996b; Williams *et al.*, 1997a,b; Gray *et al.*, 1999a,b, 2000). In some situations, after greeting the client, the consultant might initiate the farm inspection directly if he felt the client was more at ease on the farm rather than sitting around the kitchen table (Rogers *et al.*, 1996b; Gray *et al.*, 1999a,b, 2000).

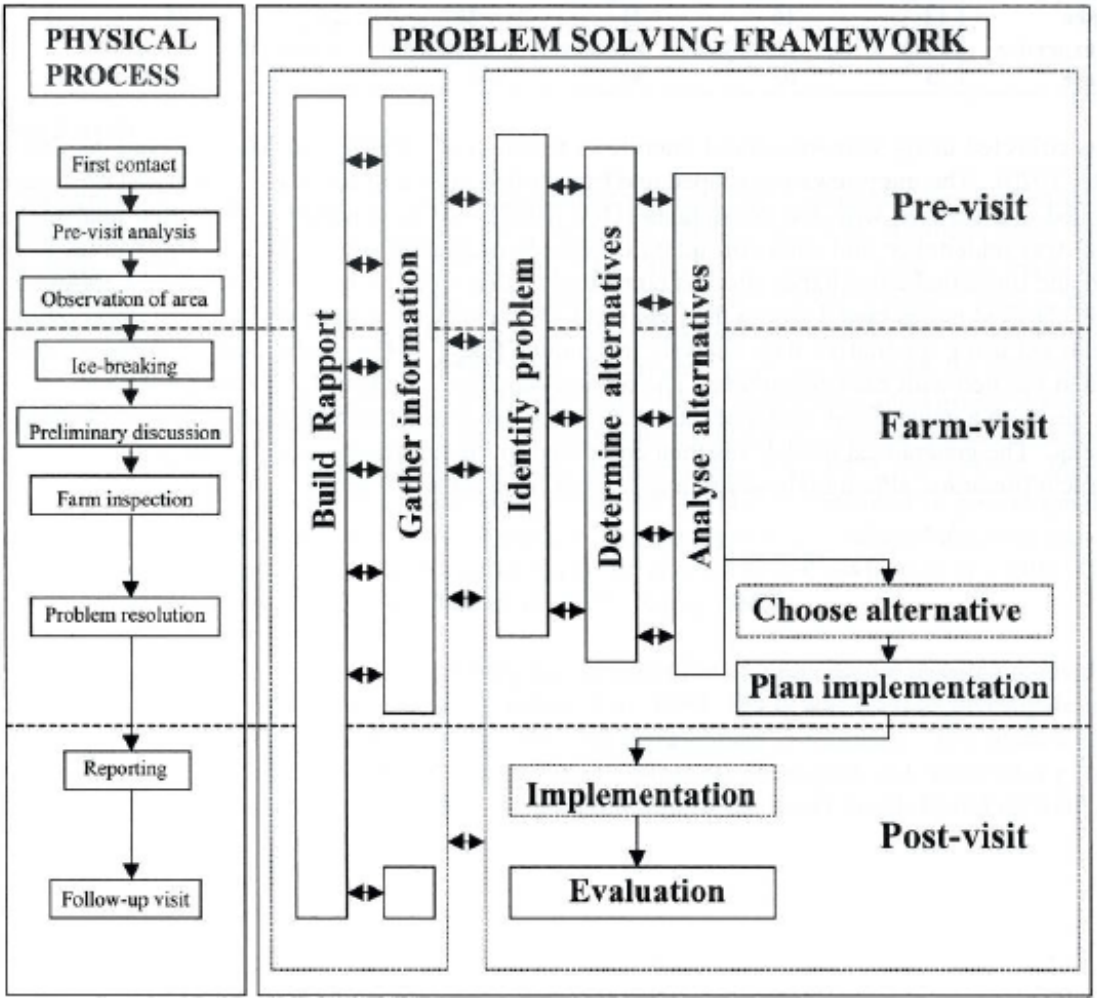


Figure 1 A model of the consultancy process (Source: Gray *et al.*, 1999b)

As rapport developed between the clients and the consultant, Gray *et al.* (1999b) reported that the consultants in their study focused the conversation on the goals, farm roles and interests of family members. They found that the consultants placed particular emphasis on understanding the farm family and their goals. In most instances, the consultants tried to ensure both partners were at the meeting. Gray *et al.* (1999b) reported that once a relaxed and trusting atmosphere had developed during the initial meeting, the consultants then clarified the client's reason for contacting them and this allowed the reason for the visit to be confirmed and further information to be collected about the problem (Gray *et al.*, 1999b). After this, information about the

farm and financial position were collected (Rogers *et al.*, 1996b; Gray *et al.*, 1999b, 2000). The amount of information gathered during the preliminary discussion again differed across consultants (Rogers *et al.*, 1996b; Gray *et al.*, 1999b).

Once the preliminary discussion about the farm and financial position were completed, the consultant undertook a farm inspection with the client (Figure 1) (Rogers *et al*., 1996b; Gray *et al.*, 1999b, 2000). During this phase the consultants: observed the physical resources, confirmed information gathered during the preliminary discussion and collected further information. This information was used to identify potential problems or opportunities which were either discussed when they were encountered or after the farm inspection (Rogers *et al*., 1996b; Gray *et al.*, 1999b, 2000).

After the farm inspection, the consultant then moved onto the problem resolution phase (Figure 1) (Gray et al., 1999b). This stage might begin with the consultant highlighting the strengths of the client's farm, or conversely reiterating the reason for the visit and asking the client what they proposed to do about the problem (Rogers et al., 1996b; Gray et al., 1999b). The consultant then outlined the main problems and opportunities that he had identified during the visit and verified these with the client (Rogers et al., 1996b; Gray et al., 1999b). The consultant then discussed possible solutions with the client (Gray et al., 1999b) and then the client selected an option that best suited their particular situation (Rogers et al., 1996b; Gray et al., 1999b). The consultant then discussed how the solution would best be implemented on the farm with the client (Rogers *et al*., 1996b; Gray *et al.*, 1999a,b).

The final phase of the consultancy process was the post-visit period (Figure 1). During this phase, the consultant may prepare and send a written report to the client (Rogers *et al.*, 1996b; Gray *et al.*, 1999b). This may comprise a brief report of a few pages or a much more detailed report that includes financial budgets and detailed recommendations (Rogers *et al*., 1996b; Gray *et al.*, 1999b, 2000). The consultants may also undertake a follow up visit to identify if the client has problems with the implementation of the recommendation (Rogers *et al*., 1996; Gray *et al.*, 1999a,b, 2000).

A more recent study by Bruce (2013) in which she investigated how a sheep and beef consultant diagnosed and solved an enterprise mix problem for a farmer client reported a six step process rather than a three step process (Figure 2). The main differences were during the post-visit phase. Bruce (2013) identified that the consultant had four key phases post-visit. First, he analysed the problem after returning to his office. The results of this analysis were then taken back to the client during a second farm visit and discussed. During this phase a decision was made about the enterprise mix that would best suit the client. This may be the initial solution offered by the consultant or it may be a modified solution that emerged as a result of the discussion. As with the other studies (Rogers *et al*., 1996b; Gray *et al.*, 1999a,b, 2000), once a solution was agreed upon between the consultant and the client, the consultant then discussed the implementation of the solution with the client. The consultant would then return to the office and complete any further analysis if required, write a report for the client and send it to them. The final phase was a follow-up visit after a suitable period of time to evaluate the client's implementation of the plan and the suitability of the recommendation. Bruce (2013) reported that the consultant felt that the value of a follow-up visit was that it helped reinforce what was discussed during the preliminary visits and that it motivated the client to begin implementing the change before the next visit. The study by Bruce (2013) suggests that the number of phases and steps within the consultancy process is a function of the complexity of the client's problem or problems. A complex problem like the design of a new enterprise mix for a sheep and beef farm may require more phases and additional farm visits than less complex problems. The other component of the consultancy process, the problem solving framework (Rogers *et al*., 1996b; Gray *et al.*, 1999a,b, 2000) is described in the following section.

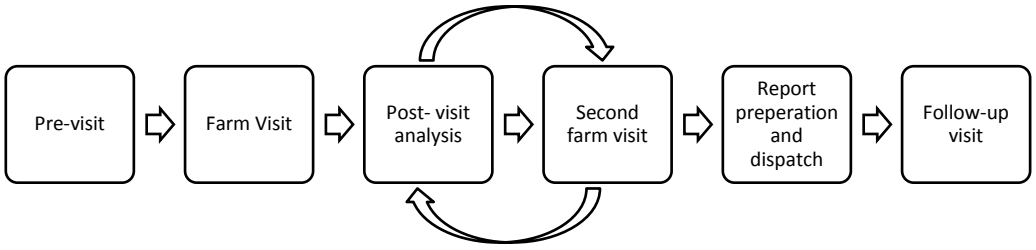


Figure 2 The six stages of the consultancy process that were followed to solve an enterprise mix problem (Source: Bruce, 2013)

3.3 The problem solving framework

Rogers *et al*. (1996b) and Gray *et al*. (1999b) in a study of expert farm management consultants reported that during the physical phases of the consultancy visit, the consultants undertook what they termed a problem solving framework which was used to diagnose and provide solutions to important problems faced by their

farmer clients. This framework was based on the problem solving framework developed by previous farm management researchers (Lee and Chastain, 1961; Johnson *et al*., 1961; Scoullar, 1975; Johnson, 1976). The framework comprised nine steps (Figure 1). In the initial model by Rogers *et al*. (1996b), these steps were sequential in nature, but a later model by Gray *et al*. (1999b) modified this and showed that the steps were iterative in nature (Figure 1). Other changes related to the duration of the phases. For example, in the early model (Rogers *et al*., 1996b), the phase information gathering only occurred during the pre-visit stage whereas in the later model developed by Gray *et al*. (1999b), it occurred during the pre-visit, farm visit and post-visit phases (Figure 1). Gray *et al*. (1999b) in their later model also tried to emphasise the interlinked nature of the steps in the problem solving framework (Figure 1). The other critical aspect of the model developed by Rogers *et al*. (1996b) and Gray *et al*. (1999b) was that the problem solving framework used by the expert consultants could be usefully separated into two interdependent processes, a rapport building process and a problem solving process (Figure 1). Although rapport building is not the focus of the study, the following section will provide a short overview of the material on rapport building.

3.3.1 The rapport building process

Rapport building is important for the problem solving process because it is critical to build affinity, trust and understanding with a client). Without this, it is difficult to obtain relevant and more importantly, sensitive information for problem solving (Williams *et al.*, 1997a,b; Kemp *et al.*, 2000). The studies where rapport building was highlighted as important (Rogers *et al*., 1996b; Gray *et al.*, 1999b) investigated a first visit to a new client rather than a repeat visit to an existing client. In this situation, unlike later visits where rapport has been built, rapport building is important to ensure a relationship develops between the consultant and client (Kemp *et al.*, 2002; Williams *et al.*, 1997a,b).

Kemp *et al*. (2000) defined rapport as a relationship, normally between two people that has a sufficient degree of openness, such that important information for problem solving can be elicited. They reported that rapport is made up of three principal components: affinity, trust and understanding (Figure 3), which are essential for rapport between a consultant and a client. They defined "affinity" as a natural liking for someone and "trust" as having a firm belief in the honesty and reliability of another. Drawing on the work of Love (1996) they identified two aspects of trust in relation to consultancy. These were: 1) technical competence and 2) personal integrity. Technical competence relates to the consultant's industry knowledge, ability to solve problems and appreciation of the practical aspects of farming. A consultant had personal integrity if they put the client's interests first and were discreet. The final component of rapport was "understanding" and they defined this as having an appreciation and awareness of another. Kemp *et al*. (2000) separated understanding into three components: 1) empathy, 2) sympathy and 3) sensitivity. Sympathy was defined as having an understanding of another person's feelings, whereas empathy was defined as understanding the situation of another person. The final component of understanding, sensitivity to the needs and requirements of others, encompasses those aspects of understanding not covered by empathy and sympathy, such as being aware of an individual's level of education.

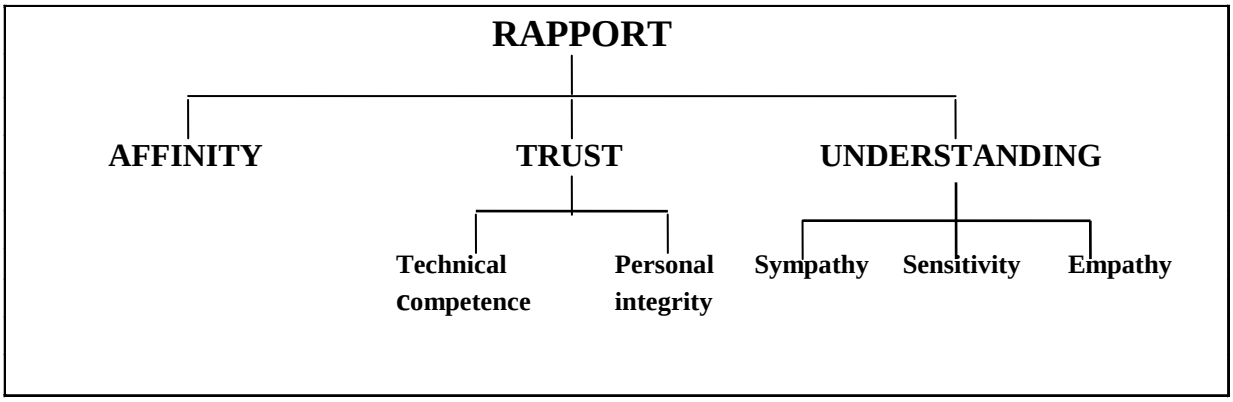


Figure 3 The components of rapport (Source: Kemp *et al.*, 2002)

Kemp *et al*. (2000) found that personal communication was used by the consultant to build rapport with a client. The consultant played two roles during the communication process and these were as a sender of messages and then as a receiver of messages (Figure 4). During this process, the exchange of both information and behaviour occurs. In the role of sender, the aim of the consultant is to convey certain messages to the client. Encoding is the term used to describe the process of creating a message and

messages can be separated into vocal and non-vocal forms. When sending a message, the consultant constantly monitors the client's reactions for feedback and adapts the message in response to this to enhance its effectiveness. Feedback is critical because different people can interpret the same message differently. In the receiver role, the consultant tries to understand the message sent by the client, a process referred to as decoding. The consultant decodes a message by listening to, and through observation of the client. The consultant in the role of receiver must also provide feedback to allow the client to determine if the message has been decoded correctly.

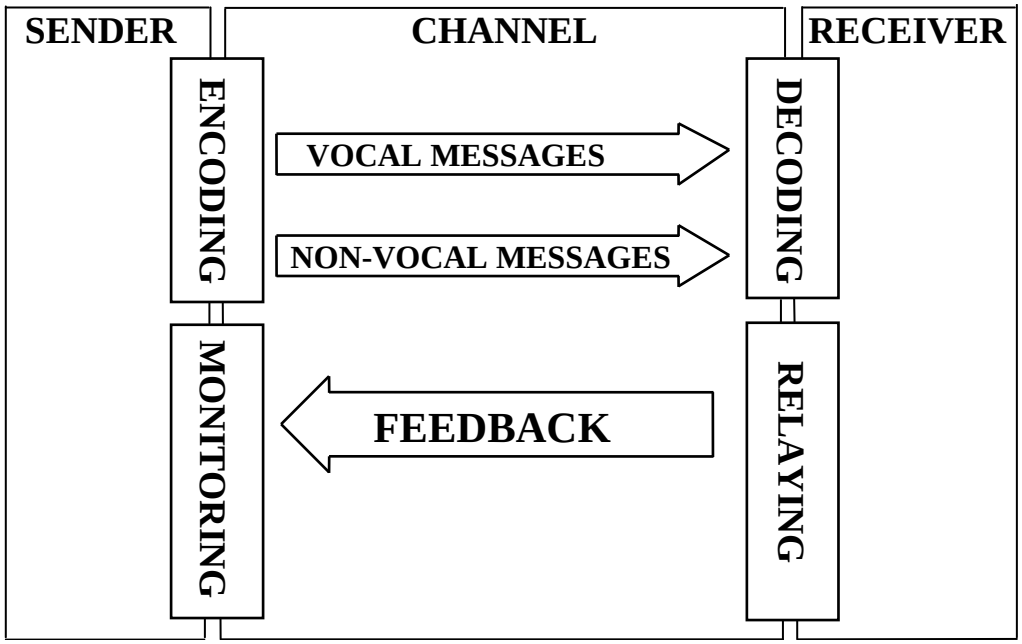


Figure 4 A model of effective communication (Source: Kemp *et al.*, 2002)

The paper by Kemp *et al*. (2000) reports on how an expert farm management consultant builds rapport and its components (affinity, trust and understanding) with a client. However, because this element of the consultancy process is outside the scope of this study, this area will not be covered in any more detail in the review. The following sections review the literature on the problem solving process used by farm management consultants when working with a client.

3.3.2 The problem solving process

During the physical phases of the farm visit the farm management consultants used a problem solving framework to diagnose and solve the client's problem (Rogers *et al.*, 1996b; Gray *et al.*, 1999a,b). This problem solving framework comprises nine steps that are presented sequentially although they are iterative in nature (Figure 1). Other than the first step of rapport building, the other elements of the problem solving framework are in effect a problem solving process based on the work of previous farm management researchers (Lee and Chastain, 1961; Johnson *et al*., 1961; Scoullar, 1975; Johnson, 1976). Importantly, Gray *et al*. (1999b) in a study of the problem solving process of two expert farm management consultants compared their processes to those of other types of experts described in the naturalistic decision making literature (e.g. Endersley, 1997; Klein, 1993, 1997; Lipshitz and Shaul, 1997). This has broadened the theory around problem solving in relation to consultancy.

The majority of New Zealand studies in the literature (Rogers *et al.*, 1996a,b; Gray *et al.*, 1999a,b, Bruce, 2013) have focused on the first up visits of an 'expert' farm management consultants to new clients and how they diagnose and solve a generic problem (Rogers *et al.*, 1996b; Gray *et al.*, 1999a; Gray *et al.*, 1999b). More recently, Bruce (2013) described how an expert farm management consultant diagnosed and solved an enterprise mix problem for his sheep and beef farmer clients. This study identified that the consultant went through a similar process to that reported in the other studies, but Bruce (2013) was able to describe how the consultant diagnosed and solved a specific problem type (enterprise mix problem) as opposed to a generic process. A key point made by six expert farm management consultants in the study undertaken by Gray *et al*. (1999b) was that all stressed the importance of maintaining an open mind about the nature of the problem

during the problem solving process because often the problems identified during the visit were quite different from those specified by the client during the telephone conversation.

Rogers *et al.* (1996b) also compared the farm management consultancy process to the corporate management consultancy process described by Kubr (1986) that included five steps: entry, diagnosis, action planning, implementation and termination. The entry phase included the development of a helpful relationship between the client and consultant the determination of the client's expectations in relation to the relationship and the preliminary identification of the problem (Kubr, 1986). This is similar to the rapport building and the initial part of the information gathering and problem diagnosis phases of the problem solving described by Gray *et al*. (199a,b). The next phase, diagnosis encompasses the diagnosis of the problem and an examination of the information pertaining to the problem (Kubr, 1986). This is similar to the problem diagnosis phase in Gray *et al*.'s (1999a,b) problem solving model. The action planning phase involves the development of alternatives, the selection of the most appropriate alternative for the problem and the client and the development of a plan to solve the problem (Kubr, 1986). Again this is similar to the steps in Gray *et al*.'s (1999a,b) problem solving model of identify the problem, determine alternatives, analyse alternatives, choose alternatives and plan implementation. Kubr (1986) includes implementation in the corporate consultancy process because consultants can be heavily involved in implementation. However, Gray *et al*. (1999b) pointed out that farm management consultants leave implementation mainly to the client. Termination involves the evaluation of the action plan and the formation of plans for continuation. Gray *et al*. (1999b) pointed out that for most farm management consultants termination was a misnomer because their aim was to have repeat visits to a client's property. In the next section, the literature on steps in the problem solving process used by farm management consultants will be discussed.

3.3.2.1 Information gathering

Consultants, like other experts (Lipshitz and Shaul, 1997) spend the majority of the visit collecting a large and diverse range of information (Gray *et al.*, 1999a). Gray *et al.* (1999a) drawing on the work of Lipshitz and Shaul (1997) highlighted that they spent the majority of their time on "situation assessment" and limited time on analysis. Information gathering begins with the first telephone call from the client and continues until the end of the visit (Rogers *et al.*, 1996b; Gray *et al.*, 1999b, 2000) as well as occurring during the follow up visit or visits (Bruce, 2013). As such consultants spend the majority of their time during the farm visit gathering information and undertaking a situation assessment, and relatively less time on analysis (Gray *et al.*, 1999a). Information is gathered about: the client and the farm family, the community, farm resources, the farmers management of the farm business, and its productivity – both physical and financial (Rogers *et al.*, 1996b; Gray *et al.*, 1999a; Gray *et al.*, 1999b; Bruce, 2013). This information was used by the consultant in five ways. First, it was used to develop rapport with the client. Second, to build a picture of the farm business and farm family using a classification schema (Gray *et al.*, 1999a) to provide a context for solving problems and identifying constraints. Third, to identify, diagnose, and define the problems and opportunities (Rogers *et al.*, 1996b; Gray *et al.*, 1999a; Gray *et al.*, 1999b, 2000) and finally, to tailor a solution to the problem or problems that best suited the client (Rogers *et al.*, 1996b; Gray *et al.*, 1999a; Gray *et al.*, 1999b, 2000). The fifth use for the information the consultant gathered was for evaluation purposes. This information was gathered on subsequent visits to assess the efficacy of the consultant's advice and also the ability of the client to implement the solution the consultant had recommended (Gray *et al.*, 1999b, 2000; Bruce 2013). This evaluation phase is important for the consultant's learning (Bruce, 2013).

The information gathering process can be data driven or goal driven (Endsley, 1997; Gray *et al.*, 1999a; Bruce, 2013). Non-threatening descriptive data is collected through data driven methods such as conversation and observations in the early part of the visit as rapport was developed (Gray *et al.*, 1999a). In contrast, goal driven information when the consultants recognised a relevant cue and then began collecting data actively that related to that cue (Gray *et al.*, 1999a). Informal interviewing, is recognised to be the predominant method used by consultants to collect data (Gray *et al.*, 1999b), while a combination of open, closed, probing, and teach back questions as well as laddering techniques are also used to obtain the relevant information (Williams *et al.*, 1997a,b, Gray *et al.*, 1999b, Bruce, 2013). 'Why' questions were also used to understand reasons for farming practices (Rogers et al., 1996b; Gray *et al.*, 1999b). As such, interview technique is important in gathering information (Gray *et al.*, 1999a,b, 2000; Bruce, 2013). However some studies have referred to the interview technique as unstructured (Gray *et al*., 1999a,b), whereas Bruce (2013) referred to it as semi-structured interviewing. The former authors referred to the interview as unstructured because it was

similar to a conversation with little formal structure. This could be because much of the data collection was data-driven rather than goal-driven. The consultants also gathered information through observations (Gray *et al.*, 1999a,b, 2000; Bruce, 2013) and the use of documents such as financial accounts, soil test data, farm maps, and soil maps (Rogers *et al.*, 1996a,b, 2000; Gray *et al.*, 1999b; Bruce, 2013). The consultant in the study by Bruce (2013) carried a spade so that he could look at the soil profile.

3.3.2.1.1 Types of information

Consultants collect a large range of information (Table 1) from the client (Rogers *et al.*, 1996a,b, 2000; Gray *et al.*, 1999b; Bruce, 2013). The information they collect has been classified into key areas including the farm family, the farm resources including infra-structure, the farm enterprises, the management of the farm, the physical and financial productivity of the farm (Rogers *et al.*, 1996a,b, 2000; Gray *et al.*, 1999b; Bruce, 2013). Under each of these high level categories, various studies have highlighted more detailed sub-categories of information (Table 1).

Table 1 Types of information gathered by consultants [2]

Main category	Sub-categories
Farm family	Goals
	Family dynamics
	Roles
	Interests
	Risk averseness
	Management capability
	Reliability
	Personality
Community	Community spirit
	Infra-structure
	Distance to large centres or isolation
Resources	***Land***
	Location
	Effective and total area
	Runoff
	Climate
	Soil types
	Soil fertility
	Drainage limitations
	Soil maps
	Fertiliser use
	Pasture species
	Pasture quality
	Pasture production (total and pattern)
	Weeds and pests
	Contour mix
	Altitude
	Aspect
	Stock numbers
	Labour
	Number of staff
	Staff roles
	Capital
	Stock numbers
	Infra-structure
	Shed size and type
	Level of subdivision and if stock proof

[2] Sources (Rogers *et al.*, 1996a,b, 2000; Gray *et al.,* 1999b; Bruce, 2013).

	Access Yards Woolshed Water supply Drainage
Management	Grazing management Management of stock classes The reasons for particular management practices
Enterprises	Livestock policies Production targets versus actual performance
Productivity	***Physical*** Stocking rate Lambing percentage Average lamb carcass weight Calving percentage Live weight gain (cattle and sheep) Feed utilised ***Financial***
Finance	Accounts data Current cash forecast budget Cash flow budget Net worth Assets Liabilities Level of debt servicing

3.3.2.2 Problem identification

As information is gathered, the consultant uses this to identify problems and opportunities (Rogers *et al.*, 1996b). The initial study by Rogers *et al.* (1996b) identified that problem identification occurs in the pre-visit phase of the physical consultancy process. This was modified by Gray *et al.* (1999a,b, 2000) who found that it occurs through both the pre-visit and farm visit phases of a visit. Bruce (2013) in a study of an expert sheep and beef consultant identified that he undertook another process after information gathering that was not specified as a separate processes in the models developed by Gray *et al.* (1999a,b, 2000) and Rogers *et al.* (1996b) even thought it was mentioned as something the consultants in their studies did. Bruce (2013) found that the consultant in her study processes the information he collected prior to and during the consultancy visit to "*build a picture*" of the farm family and farm business. Gray *et al. (1999a,b)* did identify that the consultants in their study used information to build a picture of the farm family and farm business, but they did not separate this out as an important step in the problem solving process, probably because they were using the problem solving framework developed from the work of previous farm management researchers (Lee and Chastain, 1961; Johnson *et al.*, 1961; Scoullar, 1975; Johnson, 1976). This process is critical for a consultant because their mental picture of the farm family and farm business is central to their problem solving. As such, the section will be split into two related parts, picture building and problem diagnosis.

Picture building

Bruce (2013) reported that the consultant in her study processes the information he had gathered to firstly build a mental picture of the farm family and farm business and secondly to diagnose problems. These activities appeared to occur in tandem, as the consultant built his "picture" he also began to diagnose problems associated with the farm business (Figure 5). Expert consultants used a combination of trend analysis,

benchmarking, comparative analysis, classification and triangulation to build a picture of the farm family and farm business (Figure 5) (Rogers *et al*., 1996a; Gray *et al*., 1999a, 2000; Bruce, 2013). Information collected by the consultant was processed by comparing it to standards or benchmarks and then classified on the basis of this comparison (Bruce, 2013). Endsley (1997) argued that classification played an important role in the problem solving processes used by experts. For example, by comparing the size of the client's farm to the average for the district, the consultant could then classify the farm as either: small, large or average. At the same time, this process of benchmarking and comparative analysis followed by classification allowed the consultant to diagnose potential problems. For example, if he compared the soil fertility levels of the client's farm to industry standards and classified it as low, this would indicate a potential problem in relation to soil fertility. The process also helped the consultant identify constraints (Bruce, 2013). For example, he might classify the client's debt levels as high and this would identify a potential constraint to the farm business.

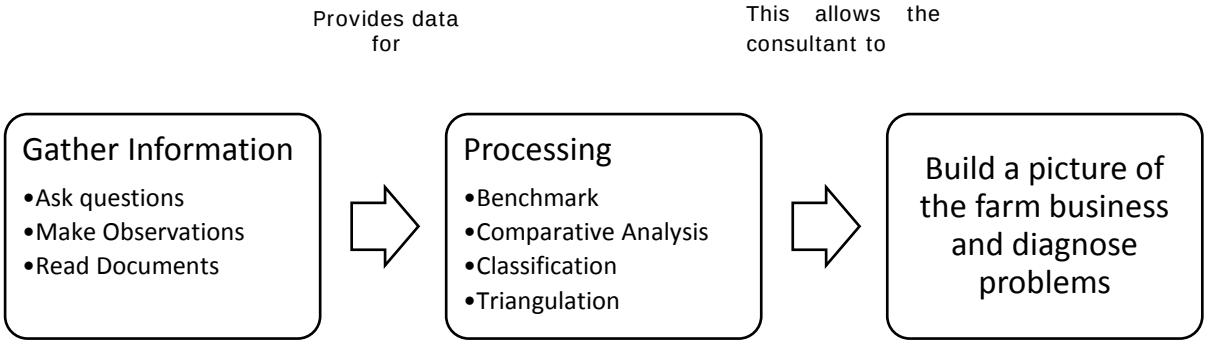


Figure 5 The process followed by the consultant to build a picture of the farm business (Source: Bruce, 2013)

Drawing on the work of Endsley (1997) from the naturalistic decision making literature, Gray *et al*. (1999a, 2000) identified that classification played three important roles in the problem solving process of the expert sheep and beef and dairy farm management consultants they were studying. First, it was used to classify the client and farm. Second, it was used to classify problem types diagnosed on the farm and third, it was used to classify possible solutions for a specific problem. They reported that classification of the farm or farmer allowed the consultant to draw inferences or expectations about the farm business and allowed them to operate with missing information. For example, a consultant would draw inferences about the client's situation from his classification of the client and farm. These inferences or expectations were then either confirmed or refuted through the information the consultant collected during the visit. Bruce (2013) in her study also identified that expert consultants can infer missing information from data obtained during the visit. This increases the efficiency of information collection because the consultants do not need to collect as much information as for example a novice consultant. For example, the expert consultant in Bruce's (2013) study could infer soil types form contour and land forms. Similarly, he used information about climate, pasture species and quality, grazing management, livestock numbers, management and performance to infer the pattern and annual dry matter yield of the pastures on a client's farm. Similarly, the consultants in Gray *et al*.'s (1999a, 2000) study could infer a range of information about a farm from knowing its location. As with the consultant in Bruce's (2013) study, the sheep and beef consultant in the study could infer the pattern and annual dry matter yield of a farm from a farm's location (distance from the coast), soil type and soil fertility, contour, aspect, altitude, rainfall and pasture species (Figure 6).

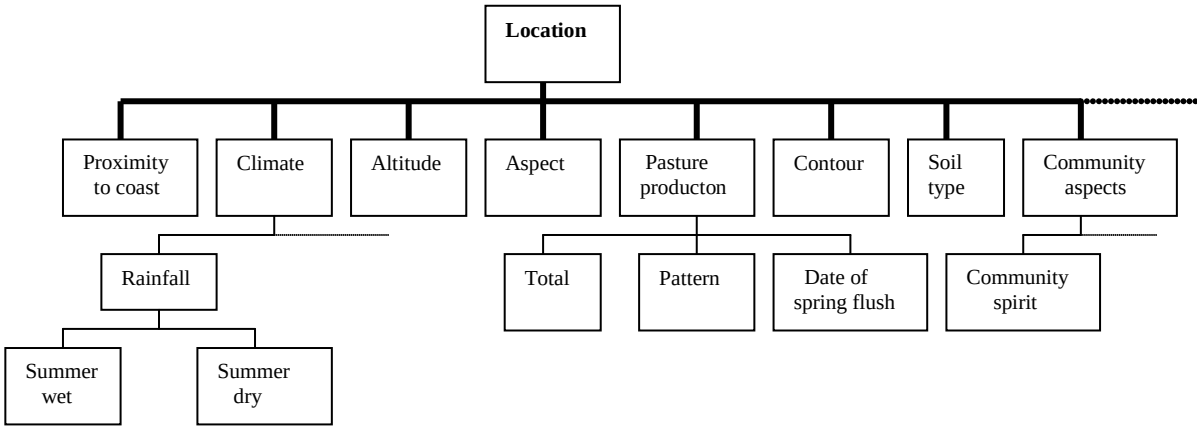


Figure 6 A partial location-based classification schema used be a sheep and beef consultant (Source: Gray *et al*., 2000)

Bruce (2013) identified three key areas the consultant in her study built a picture of during a visit; farm family, resources, enterprises. Other studies (Gray *et al*., 1999a, 2000) just mentioned the farm family and the farm business, but the difference here may be because Bruce (2013) was investigating an enterprise mix problem and the other studies were focused on the generic process. The focus of this study was around the identification and diagnosis of an enterprise mix problem on a sheep and beef farm, so it is more problem specific than the other studies. The consultant identified eight key areas from which he built a picture of the farm family: 1.) the reason for the consultancy visit, 2.) the farm family's goals, 3.) the family dynamics, the management capability of the farmer, 5.) their attitude to risk, 6.) their enterprise preference, 7.) reliability and 8.) personality. A critical piece of information the consultant must understand is the reason for the visit, i.e. why has the client invited him onto the property. Often the initial reason is a secondary reason and the more important primary reason is left unsaid. Triangulation[3] is used to compare what the consultant thinks are the main issues on the farm with what the client is saying. The consultant also triangulates across each of the decision makers in the farm family to determine if there is a shared view on what the issues are on the farm. The consultant stated that he has to be careful about how family members perceive the problem. Bruce (2013) stated that it was critical that the consultant identified the real reasons for the visit because this determined how he proceeds during the visit and what he focuses on.

The consultant must appreciate the farm family's goals so that he can better understand what they are trying to achieve with the farm business (Bruce, 2013). Goals also constrain solutions, so the consultant needs to understand this when formulating options (Bruce, 2013). The consultant also identifies if the farm family has shared goals as farm businesses tend to work best when this is the case (Bruce, 2013). A critical aspect of picture building for the consultant in the study by Bruce (2013) was to assess the management capability of the farmer (Figure 7). The consultant compares his assessment of the state of the farm resources based on observations against the client's perceptions. He also compares the client's understanding of farming principles against scientific theory and benchmarks the performance of the client's farm against district data. This information is used to classify the client's management capability across a range of areas (e.g. sheep husbandry, grazing management etc.). Such information may highlight managerial constraints.

[3] Triangulation: Triangulation is the process of using one piece of information to verify another piece of information.

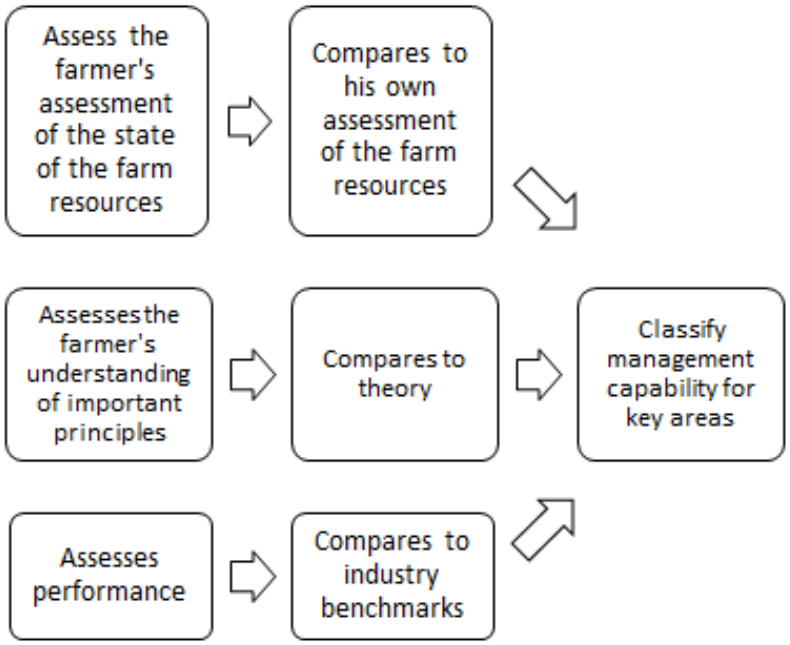


Figure 7 The process a consultant used to assess management capability (Source: Bruce, 2013).

In terms of resources, the consultant in Bruce's (2013) study classified the soils on a client's farm in relation to a range of characteristics (e.g. drainage problems, soil fertility, potential for pasture production). For example, the consultant will compare the soil test results to industry standards and classify the soil fertility on the farm as low, moderate or high. In assessing the farm resources, the consultant in Bruce's (2013) study used inferences. He inferred soil types from contour and land forms and he inferred how intensively the farm could be run, the ease with which the farm could be managed and what enterprises the farm was suitable for and unsuitable for based on his observations of infra-structure. Bruce (2013) reported that the consultant assessed the resources on a client's farm to determine the constraints that would limit the enterprise mix the farm could carry.

In Bruce's (2013) study the final area the consultant built a picture of was the client's enterprises. The consultant observed and obtained information about the client's practices for each enterprise. He then compared these to standard practices and his expectations of good practice (Figure 8). He also observed the state of the livestock resources for each enterprise and compared these to industry standards. Finally, he collected stock performance data for each enterprise and compared these to industry standards and his own expectations for the property given the resources the farmer has available.

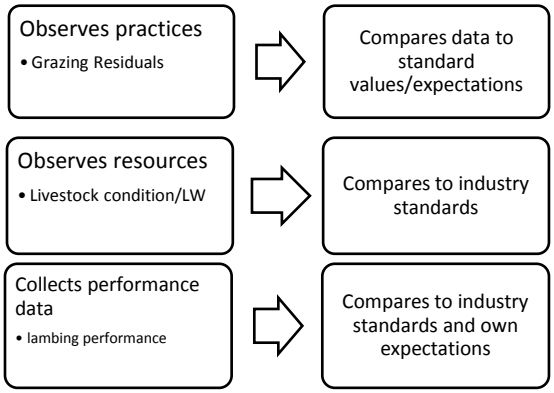


Figure 8 The process used when assessing a farm's current enterprises (Source: Bruce, 2013)

Triangulation was also important for developing an accurate picture of the farm family and farm business (Bruce, 2013). The consultant in Bruce's (2013) study compared verbal data provided by the client against observations to confirm that the client's perceptions of the state of the farming system were consistent with reality. The consultant called this process "*ground truthing*" and considered it a critical part of working with a client. There was little mention of triangulation in previous New Zealand studies of consultancy.

3.3.2.2.3 Problem diagnosis

Bruce (2013) made the distinction between comparative analysis and bench marking in her study. Comparative analysis is where the consultant compares some aspect of the client's farm to information he has built up over time about farming systems. This then allows the consultant to classify the farm and through this process further build his picture of the farm business and also begin to diagnose problems. Comparative analysis is also undertaken on a number of physical indices including: the state of the farms resources (e.g. soils, pastures, livestock, subdivision, machinery), the client's skills, family relationships, and financial performance (Rogers *et al.*, 1996b). Benchmarks are typically used to compare financial indices such as the ratios generated during an accounts analysis to a set of standard values to measure a farm's economic performance (Rogers *et al.*, 1996a). The consultant compares key performance indicators for the client's farm against industry standards and data or against his own client data base (Rogers et al., 1996a,b; Gray et al., 1999a,b; Bruce, 2013). Industry data might come from the Ministry of Agriculture or an industry database such as Beef and Lamb (Bruce, 2013). Both of these techniques along with trend analysis help the consultant build a picture of the farm business, but also help him diagnose potential problems confronting the client (Rogers et al., 1996a,b; Gray *et al*., 1999a,b; Bruce, 2013).

Trends are analysed to identify potential problems (Rogers et al., 1996a,b; Gray et al., 1999b; Bruce, 2013). However, none of the studies provide examples of the trends the consultants were looking for when diagnosing problems. Rogers et al. (1996a) just stated that time series analysis was used to analyse trends over time for the financial performance of the client by the expert consultants in their study and that they used financial ratios to determine deviations from the norm. Several studies have mentioned that as information is gathered, the consultant, where appropriate, compares this to standards or benchmarks (Rogers et al.,, 1999a,b; Gray et al., 1999a,b, 2000; Bruce, 2013). If a value differs significantly from a standard or benchmark, a potential problem is indicated (Rogers et al., 1996a,b; Gray et al., 1999a,b 2000; Bruce, 2013). Gray et al. (1999b) argued that this diagnostic process was used to reduce a very large set of potential problems that may be faced by the client to a much smaller and more manageable sub-set of problems that are specific to the client's farm. The benchmarking and comparative analysis process allows the consultants to develop a tentative hypothesis about the nature of the problem (Rogers *et al.*, 1996b; Gray *et al.*, 1999b). The consultants in many of the studies stressed that these hypotheses were tentative because there may be legitimate reasons for the client having a low (or high) value in relation to one of the consultant's standards or benchmarks (Rogers *et al.*, 1996a,b; Gray *et al.*, 1999b; Bruce, 2013). They stressed the importance of maintaining an open mind (Rogers *et al.*, 1996a,b; Gray *et al.*, 1999b; Bruce, 2013). The consultants used causal chains from their mental models of farming systems that set out causes and effects to identify the information they would need to test their hypothesis (Gray *et al.*, 1996b). This information was then collected through questioning and observation to confirm or refute the hypothesis (Gray *et al.*, 1999b; Rogers *et al.*, 1996b). The clients are then questioned about the potential problem; this will then confirm or refute the existence of an actual problem (Gray *et al.*, 1999b; Rogers *et al.*, 1996b).

Drawing on the work of Endsley (1997) from the naturalistic decision making literature, Gray et al. (1999a, 2000) identified the role that classification played in problem diagnosis. The classification process allowed the consultants to infer particular types of problems. For example, Gray et al. (1999a, 2000) reported that the dairy consultant in their study would classify dairy farms on the basis of his comparative analysis and benchmarking procedures into high and low producing, high and low cost, large and small. Each farm type had particular problems associated with it. Similarly, the consultants in the study classified their clients on the basis of stage in the farm family life cycle (entry, consolidation, development or expansion, succession or retirement and exit). Each stage of the farm family life cycle had particular problems. The dairy consultant in the study also classified the type of labour a client employed to infer likely labour problems. This study shows that the consultants process information through trend analysis, comparative analysis and bench marking to classify the client and farm system. The consultants then use the classification "type" to infer the existence of likely problems. As such, the classification schema helps narrow down the search space during the diagnostic process. Gray et al. (2000) reported that once a farm or farmer was classified, the consultants then looked for the problems associated with that "type". As such, there mental schema has a set of types for a range of elements that make up the farming system and each of those types has a set of associated problem types that the consultant is likely to encounter. Each of these problem types must have a **set of attributes** which the consultant looks for to confirm or refute the existence of that particular problem type.

Gray *et al*. (2000) also found that upon inferring a problem exists, a consultant may then use classification schemas to categorise the problem. Importantly, Gray *et al*. (1999a, 2000) found that the two consultants in his study used different classification schema for problem diagnosis (Table 2). The consultants in the study were in different sectors, one was a sheep and beef consultant and the other was a dairy consultant. However, the differences in classification schema were greater than would be reflected in sector differences alone suggesting that each consultant develops their own personal classification schema for problem diagnosis. The sheep and beef consultant classified problems into two high level areas (Table 2). Those associated with the broader operating environment in which the client operated in (e.g. low beef prices, high interest rates) and those associated with the client's farm. In contrast, the dairy consultant separated problem types into three high level areas, those associated with a particular district, those associated with a particular season and like the first consultant, those associated with the client's farm. Even at the farm level, the two consultants in Gray *et al*.'s (1999a, 2000) study used a different typology of problem types for diagnostic purposes. The sheep and beef consultant separated the problems associated with the client's farm into: farm size, profitability, farm working expense and debt servicing problems (Table 2). In contrast, the dairy consultant in the study separated the problems associated with the client's farm into: production, finance, family, goals, labour and farmer problems (Table 2).

Table 2 Classification schema used by consultants for problem diagnosis (Source: Gray *et al*., 1999a, 2000)

Sheep and Beef Consultant	Dairy Consultant
Problems caused by the broader operating environment	
	Problems associated with a particular district
	Problems associated with a particular season
Problems on a client's farm Farm size Profitability • Enterprise mix or policy • Enterprise performance o Grazing implementation o Intensification Farm working expenses Debt servicing	**Problems on a client's farm** Production Finance Family Goals Labour Farmer

Gray *et al*. (1999a, 2000) provided limited information about the typology of problem types used by the sheep and beef consultant, but they did provide some detail for the dairy consultant (Figure 9). This shows the complexity of the consultant's knowledge or mental schemas that they use for problem solving. Gray *et al*. (1999a, 2000) argued that because of the complexity of the domain, the consultants used a diagnostic process similar to that proposed by Klein (1997) that he called "feature matching". During feature matching (Klein, 1997), the consultants recognised a particular feature (relevant cue or symptom) that suggested the existence of a particular high level problem type (Gray *et al.*, 1999a, 2000). The consultant then used the typology structure to hypothesise the likely problem. Each "problem type" had an associated set of features (relevant cues or symptoms) which set out the information the consultant needed to collect to confirm or refute the existence of the hypothesised problem. By collecting the relevant information and matching this to the features of the problem type, the consultant could confirm or refute that the problem existed. Gray *et al*. (1999a, 2000) reported that one of the consultants in the study compared this to working down a "diagnostic tree". This explains how 'experts' are able to make complex decisions in uncertain environments under time pressure (Klein, 1997). As such classifying problems and matching information to the relevant features of a problem is an interesting addition to the problem solving process presented by Rogers *et al.,* (1996b) and Gray *et al.* (1999b), neither of which detailed how problems were identified by consultants.

Much of the literature only encompasses a general problem solving process used by consultants, it does not report how a consultant diagnoses a specific problem type or types. In a recent study, Bruce (2014) investigated how an expert sheep and beef consultant diagnosed and then solved an "enterprise mix" problem

for a client. Bruce (2014) described the information gathering and picture building phases of the consultant's problem solving process, but there was limited detail about how the consultant diagnosed that a client had an enterprise mix problem. She provides some criteria that the consultant considers when diagnosing an enterprise mix problem. This includes whether or not a client is passionate about the enterprises they are running. The second criterion is how well the current enterprise mix fits the farm's resources. The consultant also compares the financial performance of the current enterprises to benchmarks. However, there is little detail in terms of the use of feature matching and how relevant cues are used to diagnose an enterprise mix problem.

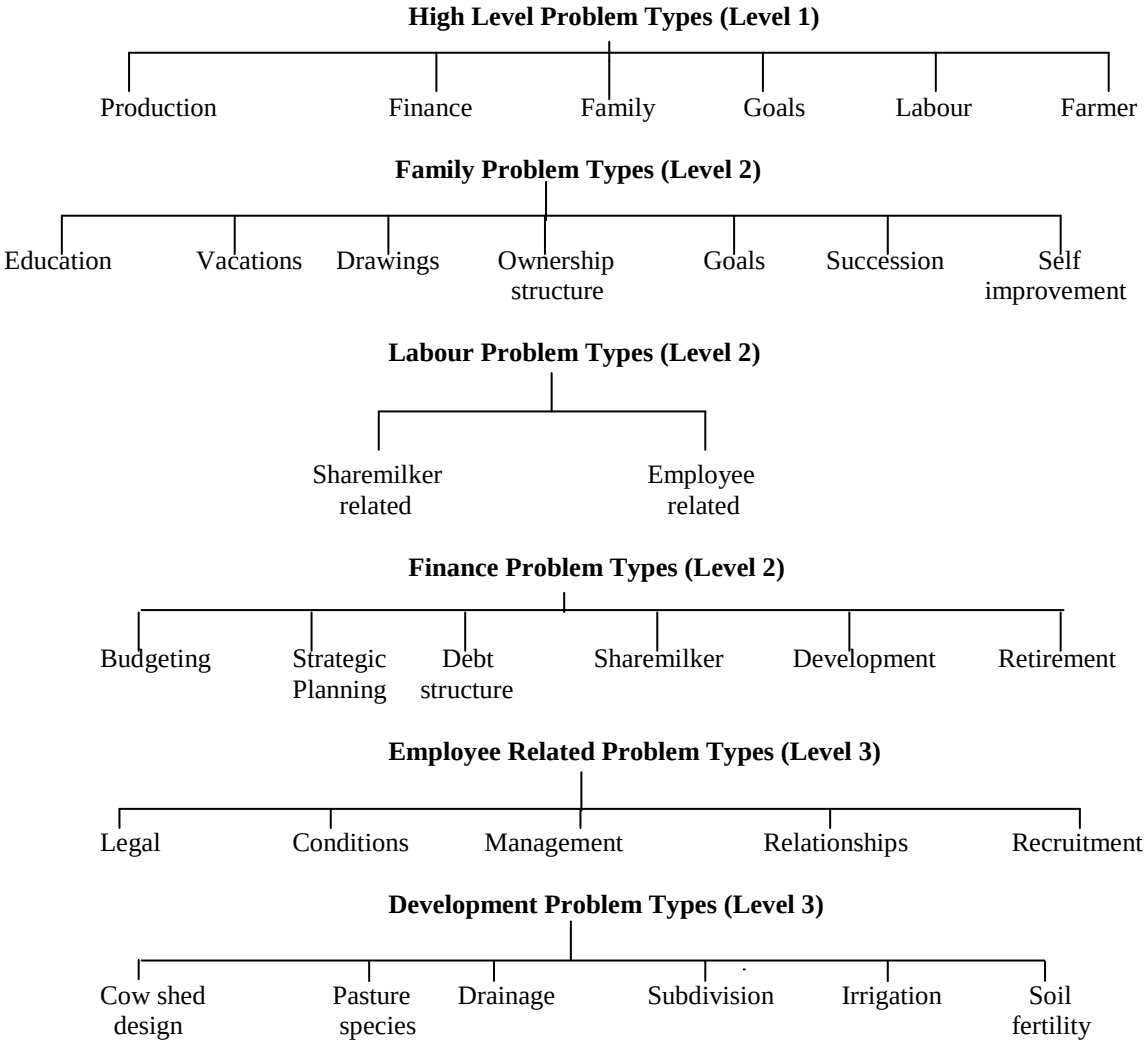


Figure 9 Classification schema used by a consultant to diagnose problems (Source: Gray *et al.*, 1999a, 2000)

3.3.2.2.4 Determine Alternatives

Once the problem had been identified the consultants identify alternatives for the client (Gray *et al.*, 1999b; Rogers *et al.*, 1996b). Consultants typically have a mental data base or set of alternative solutions for each problem area (Gray *et al.*, 1999b; Rogers *et al.*, 1996b). Like other experts (Lipshitz and Shaul, 1997), Gray *et al.* (1999a) reported that consultants have a large repertoire of options. They stated that the two expert consultants in their study used a classification schema that set out options for solving specific problems types. They gave the example that the dairy consultant in their study had a range of options for solving labour problems on his clients' farms. For each alternative solution, the consultant has an associated group of

features. They recognise and match a set of features for possible alternative solutions to the attributes of the farm business and use these to reduce a large set of alternative solutions to a smaller set of feasible alternative solutions (Gray *et al.*, 1999a). These features link to factors that the client and/or farm business

require for the solution to be 'feasible' or suitable for the property (Gray *et al.,* 1999a). For example, a solution may require a high capital input and for this to be feasible, the farm has to be able to take on additional debt.

Similarly, Bruce (2013) reported that the expert sheep and beef consultant in her study used constraints he had identified during the picture building phase of the problem solving process to screen a larger set of possible enterprises down to a smaller sub-set of feasible enterprises that he would consider with the client (Figure 10).

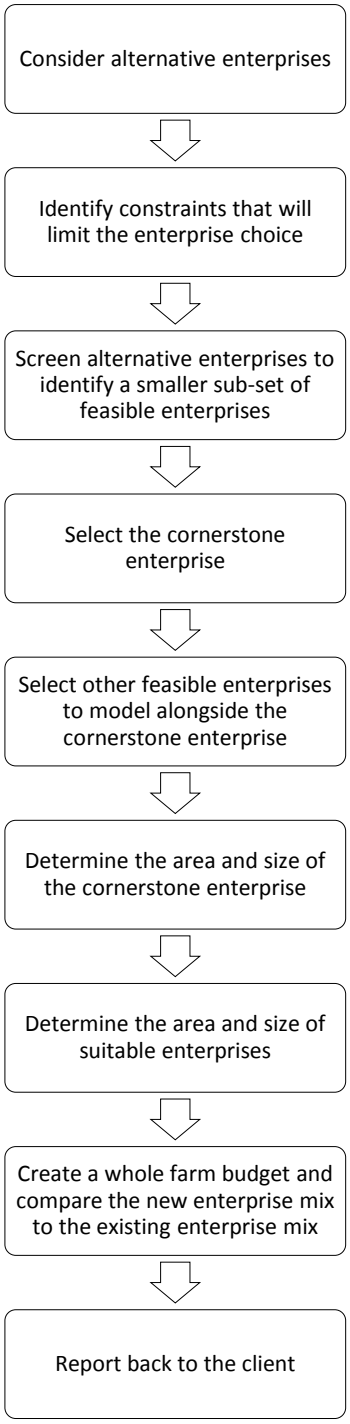


Figure 9 The process used to develop a solution to an enterprise mix problem (Source: Bruce, 2013)

Bruce (2013) provided some detail into the constraints the consultant in her study identified to help screen enterprise options for a client and or were used elsewhere in the problem solving process (Figure 11). The

consultant separated constraints into those imposed by the farm resources, those imposed by the client and husbandry constraints. Resource constraints were separated into land labour and capital. For the enterprise mix problem, the key land constraint was the soil resource. The consultant separated capital constraints into those associated with infra-structure (subdivision, water, yards etc.), debt levels and pasture production (Figure 11). The consultant separated the constraints imposed by the client into management ability, enterprise preference, risk attitude and goals (Figure 11). The final constraint type used by the consultant was husbandry constraints and he separated these into two, the sheep to cattle ratio and average monthly pasture cover levels. This constrain was not used to screen options, but was used in the selection of the final solution, the solution had to meet the consultants sheep to cattle ratio constraint and his average pasture cover level constraints for key periods of the year.

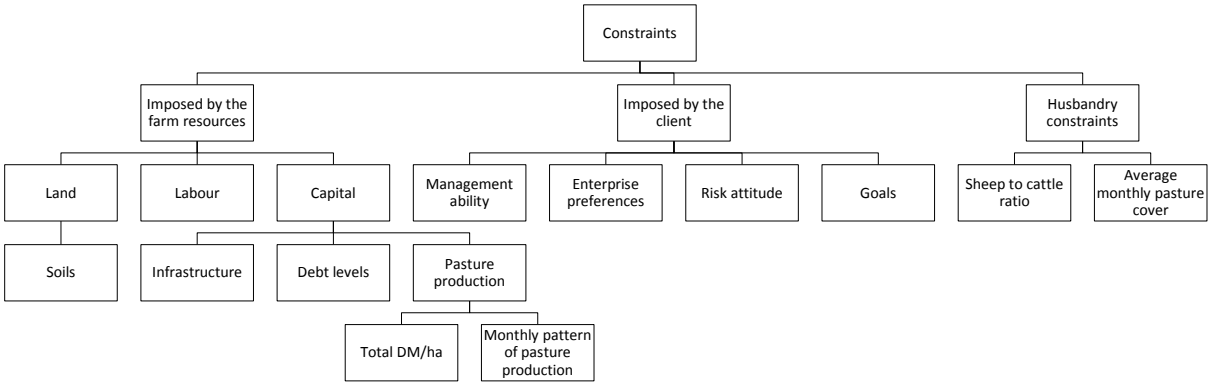


Figure 10 Constraints identified by a consultant when solving an enterprise mix problem (Source: Bruce, 2013)

The resource constraints and those imposed by the client were matched against the consultants broad set of possible enterprise for hill country properties. In effect, the consultant matched the features of possible enterprises against the features of the farm, the feature matching process identified by Klein (1997). In terms of resources, he was matching the resource requirements of the various enterprises with the resources available on the farm. For example, enterprises that had high labour requirements such as intensive bull finishing were dismissed if the labour was limited on the property. Similarly, enterprises that required a high level of capital input were ignored if the farm had high debt levels and capital was limiting. Similarly, if the client was either not capable or running an enterprise or had a preference not to run an enterprise, then these enterprises were removed from consideration. On a similar note, risky options were not considered if the client was risk averse. This process is similar to that described by Gray *et al*. (1999a), but provides more detail on the features the consultant was using for a specific problem type.

3.3.2.2.4.1 Analyse Alternatives

Despite the analysis of alternatives being a critical phase of the problem solving process (Rogers *et al.*, 1996b), little is written about how this is undertaken by farm management consultants in the literature. Similarly, despite its importance, little mention is made of how consultants deal with risk in their analysis of options for a client. Rogers et al. (1996a) mentions the techniques the consultants might draw on to undertake this analysis such as partial budgets, cash forecast budgets, investment analysis and gross margin analysis, however they provide little insight into the procedures they use during this step of the process. The specification of these financial analysis techniques suggests that consultants are comparing the financial performance of the alternative solutions. Rogers et al. (1996a) provided some insight into the process used by three sheep and beef consultants. They reported that the consultants developed a cash forecast budget for the coming year for the client's existing system. They then suggested changes to the current system (e.g. changes to livestock policy or changes to farm expenditure items) and modelled these by developing a second cash forecast budget

which they compared to the cash forecast budget for the existing system. Rogers *et al*. (1996a) stated that the consultants used the cash forecast budgets to focus the discussion with the client on the problems and opportunities facing the farm. Bruce (2013) reported a similar finding in her study of an expert sheep and beef consultant.

Again, most of the studies on expert New Zealand farm management consultants provide a high level overview of the analysis process used by the consultants, but limited detail is given. Bruce (2013) did however provide more detail into the process an expert sheep and beef consultant used to solve an enterprise mix problem (Figure 10). Once the consultant had identified a sub-set of feasible options that the client might run on the property, he then identified what he referred to as the "cornerstone enterprise". This is selected by matching the attributes of the sub-set of feasible enterprises to 1) the relevant strengths and weaknesses of the farmer, 2) their enterprise preferences and 3) the constraints the consultant has identified (Figure 11). The consultant selects a cornerstone enterprise that aligns closely with the client's goals, promotes their strengths and mitigates their weaknesses. It is also an enterprise that the client is passionate about and would not exclude from the enterprise mix regardless of profitability and other factors. The consultant stressed that it is pointless recommending an enterprise that the client is not interested in operating. The cornerstone enterprise is also the enterprise that the client is most familiar with and has the greatest understanding of how to carry out the day to day operations required to successfully manage it. As such, the client's management capability is critical in the selection of this enterprise. This enterprise then provides the "cornerstone" for the farm system and the other enterprises are built around it (Bruce, 2013).

Bruce (2013) reported that once the consultant in her study had identified the "cornerstone" enterprise for the client's system he then determined the enterprises he built around it. The consultant used a screening process to identify suitable enterprises. He used the client's goals, and the resource and non-resource constraints identified during the visit to screen the enterprises. He also used "co-grazing opportunities" which Bruce (2013, p. 54) described as "the ability to use one area of land to graze two enterprises sequentially". The example she gave was using beef cows in conjunction with breeding ewes to clean up pasture. The consultant also considers the risk attributes of the enterprises and matches these against the farming system and client. A key point Bruce (2013) reported was that the consultant stressed that changing enterprise type does not remove risk, but the nature of the risk may change. The example she provided was the substitution of a cattle trading policy with dairy heifer grazing. Financial risk is reduced because the dairy heifer grazing has a regular cash flow pattern compared to the trading policy. However, the client's exposure to legal or contractual risk is increased because of the grazing contract and the lack of flexibility of such contracts, particularly in a summer dry area. Bruce (2013) reported that by the end of the visit, the consultant in her study would have identified the cornerstone enterprise and identified other enterprises the client would consider running alongside the cornerstone enterprise. This information is then taken back to the office for further analysis.

3.3.2.2.4.2 Choose Alternatives

With the exception of a study by Bruce (2013), there is limited detail on how farm management consultants choose between alternative solutions for a client. Those studies that have reported on this have been undertaken with expert consultants (Rogers *et al.*, 1996a,b; Gray *et al.*, 1999a,b). They reported that once the analysis has been completed the consultant identifies a set of feasible solutions. These are then discussed with the client and a solution is chosen and then tailored to the client's situation. Gray *et al.* (1999a) introduced naturalistic decision making (see Klein, 1997) to explain how expert consultants could diagnose problems and make decisions about how to best solve the problem by feature matching and identifying relevant cues. However, Gray *et al*. (1999a) argued that the option selection process used by the expert farm management consultants in their study was not as simple as Klein's (1997) classification and match process. As with Klein's (1997) process, the consultants did undertake a diagnostic process and the situation or problem was classified. However, the consultants also identified the client's goals and constraints that limited the choice of potential options. They argued that the "situation assessment" process used by consultants comprised two processes. The first, like Klein's (1997) involved recognition, diagnosis and definition of the problem. However, the second process of identifying the client's goals and constraints to determine the feasible options was a step not identified in Klein's (1997) work. This process reduced a large set of options, to a much smaller set of feasible options. Rogers *et al*. (1996b) and Gray *et al*. (1999a) reported that the expert consultants in their studies then selected from this relatively small set of feasible options, that option which best suited their client's situation. This was done by matching the attributes of the options to the attributes of the farm business to find the option with the best match. Rogers *et al*. (1996b) and Gray *et al*. (1999a) believed that this process was similar to that proposed by Tversky (1972) that is referred to as "elimination by aspect". This theory has been applied to a range of agricultural situations to explain how farmers make decisions when faced with a large number of choices (e.g. Gladwin, 1976; Fairweather, 1992; Murray-Prior, 1994). In Tversky's theory (1972), an alternative is defined as a set of characteristics or aspects, an aspect can represent values along some quantitative or qualitative line (e.g. price, quality, size, riskiness) (Rogers *et al.*, 1996b). Rogers *et al*. (1996b) provided the example of different livestock enterprises having a range of aspects such as profitability, riskiness, and managerial requirements. Each livestock enterprise would have a different value for each aspect. The consultant uses the aspects and matches them to the farm characteristics

to reduce the size of his initial set of livestock options to a more feasible subset of options. Rogers *et al*. (1996b) argued that the aspects acted as constraints to remove alternatives from the feasible subset.

A key point made by the consultants in relation to option selection was the importance of tailoring advice to the client's situation (Gray *et al*., 1999a). They stressed that failure to do this normally resulted in their advice being rejected by the client. Gray *et al*. (1999a) also identified that the client may reject the option proposed by the consultant. This normally occurred because factors that the client had not identified meant the solution was not appropriate. Gray *et al*. (1999a) noted that because a consultant is solving someone else's problem there are situations, even for expert consultants where important information is not provided by the client. In such situations, the consultant's modified the solution or developed a new solution.

Most of the studies on consultancy provided little detail on the analysis of alternatives, with the process being abstracted to a high level (Rogers *et al*., 1996a,b; Gray *et al*., 1999a,b, 2000). One study by Bruce (2013) did provide more insight into how a consultant analysed alternatives in relation to an enterprise mix problem for an expert sheep and beef consultant. Bruce reported that once the consultant in her study had identified the "cornerstone" enterprise and a subset of feasible enterprise options for the client, he returned to the office and used Farmax, a simulation model, to develop a new enterprise mix for the client (Figure 10). The first step involved identifying the area of the farm suitable for the cornerstone enterprise, estimating expected pasture growth rates for that area and then modelling the cornerstone enterprise to determine the stock numbers that could be run. The consultant used the husbandry constraint average pasture cover to determine feasible stock numbers for the cornerstone enterprise. Farmax identifies when average pasture cover levels are not feasible and the consultant used this information to adjust stock numbers using an iterative process. Once the area and size of the cornerstone enterprise is set, the consultant then determines the mix (size and area) of the other enterprises that will make up the final farm system for the client (Figure 10). Initially, the consultant includes enterprises whose attributes he believes best match the farm's resources and are complimentary to the cornerstone enterprise (Bruce, 2013). Bruce (2013) provided limited detail on this process except that it was iterative and the areas in each enterprise including the cornerstone enterprise were adjusted during the analysis. Factors that influenced the choice of enterprises, and the size of enterprises, included profitability, along with husbandry constraints such as average pasture cover levels and the sheep to cattle ratio.

The final step in the analysis process described by Bruce (2013) was that once the new enterprise mix for the client was developed, the consultant then developed a cash forecast budget for the new system and compared this to a cash forecast budget for the base system (Figure 10). If the cash surplus of the new system is more than $30,000 or 50% better than the base system, the consultant considers it worthwhile discussing with the client. If it does not meet these criteria, the consultant will continue to undertake further analysis until the criteria are satisfied. The consultant also considers risk by undertaking sensitivity analysis for both production levels and product prices for the cash forecast budgets for the new and existing system (Bruce, 2013). He then compares the sensitivity of the two systems to these risk sources. There was no mention of risk analysis in the other studies (Rogers *et al*., 1996a,b; Gray *et al*., 199a,b, 2000) of expert farm management consultants. The consultant then returned to the client's farm and discussed his findings with the client. The consultant covered a number of aspects with the client including the match between feed supply and feed demand, the profitability and the sensitivity to production and price risk of the new system relative to the base. If the client is unhappy with the new system, it is altered at the farm until a system is developed that suits the client, a point made in other studies of expert consultants (Rogers *et al*., 1996a,b; Gray *et al*., 199a,b, 2000). This is normally an iterative process.

The work by Bruce (2013) highlights that a consultant may have a range of processes that they use to "solve" different problem types. Bruce's (2013) study highlights the process a consultant uses to diagnose and solve an enterprise mix problem. It could be expected that consultants have different processes for different problem types and this could be an area to explore in future work in this area.

3.3.2.2.4.3 Plan Implementation

Once a feasible solution has been identified the consultant may help the client plan the implementation of the solution although the actual implementation is undertaken by the client (Rogers *et al.*, 1996b; Gray *et al.*, 1999b; Bruce 2013). The consultant in Bruce's (2013) study helped the client plan how to move from their current situation to the new enterprise mix, a quite complex change. He stated that this was an important part of the consultancy process because it helped ensure the change was implemented correctly. Other studies (Rogers *et al.*, 1996b;Gray *et al.*, 1999b) have reported that in some circumstances the consultant may be involved in the implementation, but this is rare.

After the implementation of the change is planned, the consultant terminates the visit and returns to the office where a report is written and sent to the client (Rogers et al., 1996b; Gray et al., 1999b; Bruce, 2013). The

report which summarises the key outcomes from the consultancy is then sent to the client (Rogers et al., 1996b; Gray et al., 1999b). The consultant in Bruce's (2013) study stated that the report played an important role in reinforcing the key points that were discussed during the visit. He also stated that it also provides a starting point for the discussion during the follow-up visit. The consultant in Bruce's (2013) study believed that the reports are important for farmer learning. However, he did acknowledge that some of his client's would not read all of the report. He also reported that some clients would not adopt his advice or would modify the original recommendation. He stressed that it was their decision and not his. Little mention was made of the report in the other studies (Rogers et al., 1996a,b; Gray et al., 1999a,b, 2000) of expert farm management consultants or its role in farmer learning.

3.3.2.2.4.4 Evaluation

Several weeks after the report is sent out, a follow-up visit is then organised in which the consultant evaluates the suitability of their advice (Rogers *et al*., 1996b; Gray *et al*., 1999b; Bruce 2013). During the follow-up visit, the consultant also evaluates the client's implementation of the solution to the problem (Gray et al., 1999b; Bruce, 2013). Unfortunately, none of the studies investigated either of the evaluation processes used by consultants during a "follow-up" visit. The consultant in Bruce's (2013) study also made sure he arranged another visit during the follow-up visit.

3.4 Knowledge Cultures: Consultants As "Boundary Spanners"

The previous section reviewed the New Zealand literature on farm management consultancy. This section briefly reviews the literature on knowledge cultures (Morris, 2006) primarily to highlight that farmers and farm management consultants come from different knowledge cultures. Consultants are important "boundary spanners' (Eastwood et al., 2012) who can translate and assist farmers to interpret explicit knowledge from the science knowledge culture and integrate it with their tacit farming knowledge.

Farmers are reported by Morris (2006, p. 117) to 'constitute their identities as farmers in contrasting ways to those constructed by the policy knowledge culture of agri-environmental scheme' a point highlighted by other authors also (e.g. Burgess *et al.*, 2000; Burton, 2004). The mismatch between the conception of farmers that informs agricultural and agri-environmental policy and farmers self-concepts and attitudes is illustrated by Burton and Wilson (2006). They challenge the accuracy of the conceptualisation of farmers moving from a post-productivist mind set and practice to a multifunctional one, as being useful for informing policy initiatives in the United Kingdom. Instead, they argue that post-productivism describes patterns at the macro-structural level but does not capture the multiple dimensions of farmers' practice and thinking on-farm (Burton and Wilson, 2006).

The lack of effectiveness of voluntary agri-environmental schemes has been attributed, in some studies, to the prescriptive and means-based nature of the schemes (Ward et al., 1995; Hodge, 2001; Burton and Wilson, 2006; Burton et al., 2008; Riley, 2008). The schemes outline the specifications farmers are required to undertake, and rely on subsidies to encourage the uptake of particular practices, such as fencing off conservation areas, or harvesting on a particular date (Burton et al., 2008). As a result, it is argued that farmers have not fully engaged with (or internalised) the principles and ethos of the schemes and that real change has not taken place. This is argued to be because the schemes and associated subsidies do not require farmers to bring to bear their farming expertise or knowledge to this aspect of on-farm practice (Burton and Wilson, 2006) and 'there is no incentive to act entrepreneurially, to introduce original ideas, to innovate or to be willing to take risks' (Hodge, 2001, p. 101).

Burton (2004, p. 196) presents a rationale for considering how technologies contribute to farmers social/cultural rewards:

The reasons for the general failure of voluntary attempts to change the role of the farmer are often presented as either economic factors such as anticipated low returns or high establishment costs, structural factors such as the location of the farm relative to markets, or a perceived lack of skill on the part of the farmer to adopt the new practices. It is becoming increasingly evident that farmers may also resist change on the basis of an anticipated loss of identity or social/cultural rewards traditionally conferred through existing commercial agricultural behaviour. Clear examples of this challenge to the 'good farmer' identity are emerging from empirical studies of farmer response to government schemes.

Farming activities that contribute to a farmer's identity and social/cultural rewards are argued to be those that require a level of farming skill and expertise that can be observed by other farmers in the outcome of the activity (Burton *et al.*, 2008; Burton and Paragahawewa, 2011). The link between what farmers value and the visual dimension of productive farming is expanded upon by Burton (2012, p. 66):

> 'farmers' aesthetic landscape preference is closely tied with their understanding and practice of production activities, and…this connection has deep cultural and historical roots .. the cultural meaning of being a farmer is heavily embedded in the landscape itself.

'Tidy' farming and 'straight lines' are a widely recognised example of a farming convention associated with 'good farming' that is the source of resistance among farmers of the less 'tidy' organic production systems (Burton, 2004; Burton and Paragahawewa, 2011), including those in New Zealand (Egoz *et al.*, 2001).

Farmers in Australia have a strong preference for voluntary and education-based tools ahead of regulation, in relation to supporting sustainable land management (Cocklin *et al.*, 2007). This preference, it is argued, is aligned with farmers' strong desire for independence and for being in control of their own destiny (Robinson, 2006; Cocklin *et al.*, 2007; Leviston *et al.*, 2011; Higgins *et al.*, 2012). There is evidence also that New Zealand farmers are similarly opposed to regulation. The strongest opposition to Environmental Management Systems and Quality Assurance schemes expressed by the farmers surveyed as part of the ARGOS[4] project in New Zealand, came from farmers who considered the schemes as a form of regulation of their autonomous practice and (as such) a challenge to their standing as farmers (Rosin *et al.*, 2007).

This perspective is strongly supported by research that shows the relative success of schemes in which farmers have been actively involved in the instigation and on-going management of the scheme, and where the specifics of the scheme's application were worked through at the individual farm level (e.g. Robinson, 2006). The advantage of governing mechanisms, tailored to individual farm circumstances were highlighted in a study in Canada. A growing interest from farmers to the Environmental Farm Plan scheme was attributed to a 'renewed interest in generating ecological goods and services' by farmers but also because

> the effectiveness of uniform beneficial management practices in mitigating the negative environmental impacts from agriculture is limited by inherent heterogeneities in agricultural production systems (Yiridoe *et al.*, 2010, p. 1104)

The importance of the relationship between farmers and the officials promoting and overseeing the scheme is also highlighted (Robinson, 2006). Morris (2006) argues that experts, who are outsiders to farmers' knowledge-cultures, may not be the best people to be designing agri-environmental scheme or working with farmers to adopt these schemes. Improved environmental outcomes on farms, it is argued, rest on achieving improved communication and negotiation between farmers and people from outside farming (Burgess *et al.*, 2000; Tsouvalis *et al.*, 2000). Confirming this, credible intermediaries were identified as important in translating and assisting farmers to interpret and span the boundary between their tacit farming knowledge and expert farmer decision support systems in Australia (Eastwood *et al.*, 2012). The authors concluded:

> Linkages between users and retailers were impeded by the limited ability of each party to step outside their domain of expertise. The network of practice required translators to act as boundary spanners in bridging explicit and tacit knowledge domains. These individuals can prove effective not only because they can translate between farming practice and [decision support systems] knowledge, but because they also have a high degree of credibility with farmers (Eastwood *et al.*, 2012, p. 17).

The large body of literature that has focussed on understanding why farmers do not act in accordance with scientific knowledge-based technologies has been criticised for its failure to value or recognise the legitimate status of farmers' knowledge (Tsouvalis *et al.*, 2000; Morris, 2006; Riley, 2008). A line of research accepted as constructive by the authors of this report is that which recognises and gives legitimate status to the experiential-based tacit knowledge of farmers as a knowledge-culture (e.g. Tsouvalis *et al.*, 2000; Riley, 2008).

Farmers were shown to resist the policy knowledge culture of agri-environmental scheme with reference to their practical and experiential knowledge of managing the land (Morris, 2006; Riley, 2008). However, the farmers, in contesting agri-environmental scheme, Morris (2006) reports, drew on other knowledge, including that anchored in the productivity agenda of the neo-liberal project. Farmers' scepticism about scientists and

[4] ARGOS: Agricultural Research Group on Sustainability is a New Zealand research consortium with a mandate to examine the environmental, social and economic sustainability of New Zealand farming systems ARGOS. 2012. *AGRICULTURE RESEARCH GROUP ON SUSTAINABILITY*. Available: http://www.argos.org.nz/index.shtml.

policy-makers, Riley (2008, p. 1291) concludes, is because their knowledge (compared with the farmers' 'longstanding, durable and certain') is considered by farmers to be 'uncertain and transient'. However, although there was evidence of a contest between farmers knowledge culture and that of those outside of farming, exchange (porosity) and a re-negotiation of knowledge-culture through interaction was evident, also (Morris, 2006).

3.5 Improving Farm Management Consultancy in New Zealand: A New Initiative

Dairy farmers have to cope with an increasingly complex world where they have to develop a resilient business and meet environmental requirements (Kenny and Nettle, 2011). Assistance can be obtained from farm management consultants but the number of these will soon decrease as the older ones retire. Training opportunities for those who wish to enter the profession, though, are lacking. To remedy this deficiency, Dairy New Zealand (together with the NZ Institute of Primary Industry Management (NZIPIM), and six consultancy firms) are involved in a twenty year project to improve in alia the skills of farm management consultants. The emphasis in this project is on the development of processes and tools that will help consultants build up their expertise.

The Whole Farm Assessment and Planning (WFAP) Program has been developed by DairyNZ to help the farmer become more productive whilst at the same time enabling farm management consultants to become more competent (Kenny and Nettle, 2011). The Whole Farm Assessment and Planning tool provides the framework for a consultation which covers following areas: Background, Business Overview and Structure, Goals, Advice and Support, Succession planning, Financial Management and Performance, People Recruitment and Management, Pasture Management, Supplements, Stock Management and Reproduction, Pastures, Soils and Fertiliser, Environment and Infrastructure. Clearly the scope of the knowledge required is wide ranging and involves not only knowledge of farm management but also legal and compliance issues. The following section reviews the literature on this new initiative and highlights the key findings from recent research associated with the programme.

3.5.1 Collection of data

In order to evaluate the success of the program, it was necessary first to collect base-line data about the current situation of consultants in NZ (Kenny and Nettle, 2012). The professional body, the NZIPIM, has 208 members of whom 106 met the standard for professional registration at the end of 2011. Four focus group meetings were held, one with the principals of the six firms involved in the project and three focus groups with consultants from three of the six firms. Occasionally there were follow-up interviews with the participants. With regard to recruitment, some firms initially employed the new consultants on an industry-based project (Kenny and Nettle, 2012). This allowed them to build up expertise before handling their own clients. Other firms employed people (with existing skills and networks) who they thought could quickly build up a client base. One firm believed that ideally a new consultant should spend 10% of their time on training, 30% on project work and 60% on firm-sponsored consultancy. Performance reviews of staff were largely informal, carried out by senior consultants.

Whilst learning-by-doing (supported by formal or informal mentoring) was seen as very important for new consultants, there were also professional development opportunities for those with more experience (Kenny and Nettle, 2012). Participating in industry conferences and attending NZIPM workshops enabled consultants to extend their knowledge, helping "to sharpen the sword" (Kenny and Nettle, p6 2012). There were differing views about the value of professional development opportunities for staff (Kenny and Nettle, 2012). At one end of the spectrum was a firm which allowed consultants to spend 20 -30 days per year working on industry good projects or professional development opportunities. For another firm there was no time for such activities.

3.5.1.1 Survey of consultants

An online survey of consultants was carried out in May 2012 (Kenny and Nettle, 2013). This collected information about demographic details, the nature of the consultancy business, the focus of their consulting work, client engagement, referral and networking behaviours and preferences for professional development. Consultants in New Zealand were invited to participate via an e-mail link with one week to respond. Those who did not reply were contacted again with a further two weeks allowed to answer the questionnaire. Of the 223 consultants invited to participate, 120 replied, a response rate of 54%. The profile of the participants is shown in Table 3.

Table 3 Profile of the participants in the survey (Source: Kenny and Nettle, 2013)

Category	Percentages
% of respondents over 50	49
% of respondents over 40	75
Gender – M/F	81/19
% with less than 6 years' experience	38
% with student background prior to consulting	42
% with farmer background prior to consulting	32
% with NZIPM membership	51
% NZIPM members registered	34
% working as employee	37
% working as sole trader/fee income	40
% with degree or higher qualification	79

The results showed a male-dominated occupation with a large number (75%) of consultants over 40 years of age, indicating a missing generation in the profession (Kenny and Nettle, 2013, p. 5). Virtually 80% of the consultants had a degree or higher qualification. Other findings from the general survey are as follows (Kenny, 2012):

- More than 50% of the consultants spent some time working on projects.
- 85% of consultants saw time as being the key limiting factor to participating in network building activities.
- Working with farmers constituted more than 60% of business for 68% of consultants.
- 73% of consultants saw less than 40 individual farmer clients per year.
- 15% of respondents saw more than 60 individual farmer clients per year.
- 70% of respondents would seek out information and support rather than make referrals to others. Areas where referrals are least likely to be made included grazing management, whole system integration and animal farm management. Referrals were most likely to be made with regard to dispute resolution and mediation, compliance, farm infrastructure and dairy farm conversions.
- With regards to the best ways of building skills and networks:
    - 68% of respondents would attend one day technical seminars
    - 55% of respondents wanted formal training and professional opportunities.
    - 40% of respondents would attend topic based multiday conferences.
    - 38% of respondents wanted one day on-farm events
    - 37% of respondents wanted interaction through problem solving
    - 15% wanted Webinars and other technology based activities.

3.5.2 Capability assessment

In order to build a capability assessment survey, the principles from the participating firms were asked to rate the importance of key aspects of a farming system (Kenny and Nettle, 2012). The results in order of importance were as follows: grazing, finance, people management, getting cows in calf, animal health, young stock management, compliance and milking. Subsequently other categories were added but not ranked: soils and nutrients, cropping and re-grassing, business strategy, infrastructure, irrigation and water, systems integration. Domain specialists were asked to define what they meant by competent performance in all these areas. Benchmarks for performance were established based on a 1-5 goal attainment scale where a score of 1 represents a novice and 5 a domain expert. Practice descriptions of competence (3 on the scale) were provided by the principles of the firm involved in the research (Table 4).

Table 4 Firm's expectations of competent performance in farming systems (Source: Kenny and Nettle, 2013)

Grazing management

Understand KPIs for good grazing management and diagnose problems behind performance gaps.

Understand key principles for integrating other forages with pasture.

Nutrition and feed budgeting

Diagnose key limiting factors. Develop plans to address these. Develop feed budgets and least cost rations

Animal health

Condition score cows. Know basic animal diseases and how to prevent them. Put health issues into context

Compliance

Understand minimum requirements for areas. Know when compliance being breached.

Know who to refer client to for support

On farm people management

Assess general farm management ability. Know critical elements of good HR management.

Financial management

Budgets/cash flow/analyse accounts.

Understand key farm financial benchmarks and banking indices. Explain these to farmers.

Animal reproduction

Identify factors in farming system limiting achieving KPIs.

Growing young stock

Key principles of growth.

Milking cows and milk quality

Mastitis, milking machine function, dairy shed design, performance KPIs

Soils and nutrient management

Interpret soil tests/least cost fertilizer plans/nutrient budgeting/strengths and weaknesses of different fertilisers.

Cropping and re-grassing

Forage recommendations. Budgeting implications cropping regime.

Farm business strategy (including risk management)

Identify farmer's goals and objectives and can draw up a plan. Extend farmers' time horizon.

Farm infrastructure and engineering

Diagnose limitations

Irrigation, water and drainage

Diagnose limitations.

Dispute resolution and mediation

Independent counsel in dispute resolution

Whole farm integration

Develop farm system to suit farmer.

Twenty one consultants from the firms involved in the research program participated in a capability assessment exercise. The profile of these participants is shown in Table 5.

Table 5 Profile of consultants from participating firms (Source: Kenny and Nettle, 2013)

Category	Percentages
% of respondents over 50	24
% of respondents over 40	48
Gender – M/F	80/20
% with less than 6 years' experience	60
% with more than 15 years' experience	22
% with student background prior to consulting	62
% with farmer background prior to consulting	18
% with NZIPM membership	45
% working as employee	70
% working as sole trader/fee income	4

Compared with the results from the survey, this group of consultants is younger and less experienced than the respondents in the general survey. The results of the capability assessment exercise with these 21 consultants showed high self-ratings in areas such as grazing management, young stock management, animal reproduction and systems integration. Areas of weakness include mediation and conflict resolution, infrastructure development, and irrigation and water. The following section discusses the Whole Farm Assessment and Planning program and in particular the use of the GAP Analysis tool as part of this program.

3.5.3 Assessment of the Gap Analysis Tool

The Whole Farm Assessment and Planning program is focused on the development of tools such as the Gap Analysis tool which aims to identify areas for improvement in the farm business. It focuses on 13 thirteen key areas: allocating feed, sourcing supplements, growing forage, stewardship of natural resources, disposing effluent, milking cows, keeping cows healthy and ensuring quality stock, getting cows in calf, growing young stock, managing money, strategic planning, people management, and being compliant (Kenny and Nettle, 2013). This tool provides a framework or a checklist for a consultation. The value of using the Gap Analysis tool was trialed with junior consultants who carried out the assessment focusing on the 13 topics. They were given some background information about the project before participating in the trial and interviewing the farmers. The plan for each farmer (based on the assessment of the situation) was developed subsequently by more senior consultants with the following five sections (Kenny and Nettle, 2013, p19):

- "A "why?" section. This outlines the objectives of the farm business for the next 10 years (divided into 2 periods 1 to 5, and 5 to 10 years).
- A "what?" section. This described the characteristics of the business.
- A "how?" section. This summarises how to meet the objectives using the resources available.
- A "SWOT" analysis. This analyses the risks associated with implementing the plan.
- The annual plan with the key areas for the next 12 months."

Once the pilot study was completed, a workshop was held with the consultants and principals of the firms involved in the project. Some of the farmers were also interviewed and their feedback discussed at the workshop. There are many strands to this research (value to farmers, value to consultancy firms etc. of using the gap analysis and planning process), but the focus in this literature review is on the value using the gap analysis and planning process to assist consultants become more competent. In this context, the following reported responses from the consultants involved in the process are of interest (Kenny and Nettle, 2013). It should be noted that the findings are from individuals and not groups. There were many positive comments about the gap assessment:

- Using the tool helped to build relationships with farmers.
- The tool helped a consultant to ask questions in a logical order.
- The traffic light rating system was easy to use
- The approach was seen as very relevant, providing the impetus for change.
- The tool enabled great baseline data to be collected.
- The focus on the first visit was on data collection whilst solution generation could be postponed
- The main problems could be easily identified.

There were some criticisms of the process (Kenny and Nettle, 2013):

- There was too much information to collect.
- The initial visit was too long (two hours would have been ideal).
- The data collection process seemed unduly lengthy because of the need to ask cross checking questions.
- The gap analysis approach could help with building a good relationship with farmers, but a better introductory speech would help explain to farmers the value of participating in the process.
- Assistance was needed in helping junior consultants to keep questions conversational and not sound judgemental.
- It was challenging to collect relevant information from farmers who could not provide the appropriate documentation.
- Input was required from other workers, but it was difficult to obtain access to them.
- Good farmers were usually aware of the problems on the farm and more in-depth interviewing would be required. One farmer wanted more answers to issues throughout process. The tool did not support the junior consultants in these circumstances.
- It was easy for farmers to see their ranking during the visit (embarrassing when the farmer was rated as "poor").

Various ways to improve the tool were suggested. These improvements relate to streamlining the process and helping the consultants to build a good relationship with the farmer. Removing unnecessary obstacles would make the tool a more useful instrument for consultant learning. The following suggestions were made (Kenny and Nettle, 2013):

- Streamline the amount of information required from the farmer.
- Focus on skills and job engagement/keep questions conversational and not judgemental (focus on this in training).
- Look for more observable evidence rather than using cross checking questions. Training might be required to learn this skill.
- Ensure farmers understand what is happening at each stage.
- Remove the great and poor rating scale on the recording document which can hamper rapport building
- Help farmers realize the value of the approach – give the tool a more meaningful name and have a catchy marketing plan.
- Provide a user friendly version, for instance on a tablet computer
- Make the section on risk simpler to fill out

The principals of the firms involved also provided their feedback on the gap analysis and planning process (Kenny and Nettle, 2013). The main benefits were that the interview process helped consultants to focus on essentials whilst the plan indicated what action is required and it could be used as a reference point for communications with others including banks. For the firm itself, the approach provides a more consistent way of handling the consultancy process, encouraging discipline and providing training opportunities for those less experienced. With regards to the industry, using the gap analysis approach should help develop experts for the future. A major problem was the difference between the actual cost of using this approach and what farmers were prepared to pay for the consultation.

Overall, the tool provided an excellent basis for information collection and problem identification. It highlighted all the important areas in which a consultant requires expertise (even if it only helped them to identify the areas where they might need to consult others). The framework provides the scaffolding (Vygotsky 1987) which assists the more junior consultants to build up their experience on the farm. Whilst the junior consultants did not draw up the plan, they were able to observe the planning process as undertaken by the senior consultants, learning from their more experienced colleagues how to move from data analysis to plan generation.

With some modifications this approach could become even more useful for supporting the learning of junior consultants. Some training opportunities were identified with regard to the information collection process. Question asking skills could be refined and the consultants trained to make inferences from observations rather than always having to ask cross checking questions. Unfortunately, the tool was not seen as particularly effective for interacting with good farmers who were already managing the farm well.

3.5.4 Educational aspects of the research

With regard to performance, Kenny and Nettle (2013) distinguish between skills and practice. Whilst skills may be upgraded through professional development opportunities, overall competence usually requires a great deal of experience. The capability assessment tool helps consultants to evaluate their own level of proficiency using categories that are practice-based. In this way, strengths and weaknesses can be highlighted. A programme tailored to meet a new consultant's training needs can be developed. Consultancy firms still have the challenge of determining the level of competence required as well as how to set the benchmarks for categories and an acceptable level of performance. Kenny and Nettle (2013) also raise the issue of whether other indicators of performance should be used, for instance clients rating the performance of consultants or measuring the change in client performance. From the firm's perspective training and mentoring staff can be very expensive and some firms are reluctant to make the necessary investment. Using the Gap Analysis Tool can be one way for a firm to support to junior consultants from the start.

It is anticipated that during the twenty years of the whole Farm Assessment and Planning program (Kenny and Nettle, 2013), appropriate course material will be developed in conjunction with NZIPIM including an ethics course. Ways of fostering professional networks will also be supported. According to Kenny and Nettle (2013) there are three reasons why consultants might choose to take up professional development opportunities. Firstly, they may wish to extend their expertise, focusing on areas in which they have previously had little training or experience (farm business strategy, for instance). Secondly, for compliance reasons they may need a qualification to obtain professional recognition and thirdly they may undertake postgraduate study to specialize in a particular area.

This section has reviewed the material around the Whole Farm Assessment and Planning programme that has been developed to assist with the training of novice consultants. The following sections review the literature across a range of areas that may provide useful insights into the problem solving processes used by farm management consultants. This includes the areas of decision making, naturalistic decision making, expertise and problem solving.

3.6 Decision Making

Problem Solving is analogous to decision making and as such research from the decision making literature may provide insights into the practice of farm management consultants. Of particular relevance is the naturalistic decision making literature that investigates decision making in everyday situations (Orasanu & Connolly, 1993). The following section will review the literature on naturalistic decision making in areas that may be relevant to understanding the practices of farm management consultants.

The complexity of decision making has been described by Davidson Frame (2012, p. 8): "Decision makers must recognize that decisions are the end product of wrestling with constraints: constraints of knowledge, time, resources, skills, forces, legacy, laws of nature, human laws, ethics, personalities and more." Various approaches have been taken historically to studies of decision making. One strand of research has been concerned with developing theories based on mathematics and economics (SEU and Prospect theory) whilst another has concentrated on the development of normative models of decision making (Crozier and Ranyard, 1997). Recently, the emphasis has been on descriptive approaches which study what people do in practice so avoiding the pitfalls of research based on results from artificial situations or idealised versions of how people act.

A decision problem arises when there is a gap between an existing and a desired state, an awareness of this gap, and a willingness to solve the problem (Cary, 1980). These ill-structured problems are defined by Simon (1986) as situations where "the goals themselves are complex and sometimes ill defined, and when the very nature of the problem is successively transformed in the course of exploration." The situation that the farm

management consultants face can be defined as problematic (Landry, 1995) since it involves the recognition of a crisis or opportunity, some control over the events so that intervention can occur; the commitment of resources to a problem and an element of uncertainty. The farm management consultant has to take account of the requirements of the client and the resources of the business. There are several normative models that describe the stages of a process that can be followed in order to arrive at a solution. Whilst some authors refer to this as the problem solving (Pounds, 1981, Smith, 1988, Cooke and Slack, 1991) and others as decision making (Hardaker *et al*., 1970, Osburn and Schneeberger, 1978, Kay and Edwards, 1994) the process described is virtually identical. The following stages typically occur: determine organisational goals and objectives, develop performance criteria, identify the problem, search for alternative solutions, choose a suitable solution, evaluate the value of the solution, implement the decision and monitor the results (Jennings and Wattam, 1994). Occasionally diagnosis of causes is also included as well as problem identification (Lipshitz and Bar-Ilan, 1996). It is expected that decision makers will iterate around these stages and not just pass through them once. Such a model can be criticised on the grounds that it may be difficult to obtain agreement when determining the goals and objectives. It may also be impossible to collect all the information needed to identify and evaluate all possible solutions.

Comparatively recently an area of study has arisen known as naturalistic decision making (NDM) which specifically seeks to discover how expert decision makers solve problems under time constraints (Klein et al., 1993, Zsambok, 1997). Elements of both decision making and problem solving are required (Means, Salas, Crandall, and Jacobs, 1993; Beach, 1997; Salas and Klein, 2001).

3.6.1 Naturalistic Decision Making

Researchers in NDM (Orasanu and Connolly, 1993) believe that decision performance in everyday situations is a function of both the features of the task and the knowledge and experience of the person carrying out that task. Making a decision may be complicated by several of the following characteristics of the situation:

- ill-structured problems where the problem solver may have to do significant work merely to generate hypotheses and/or develop options that might be appropriate
- uncertain dynamic environments where the information may be incomplete, imperfect, ambiguous or misleading. The environment may change within the time frame of the decision.
- shifting, ill-defined, competing goals. It is rarely the case for decisions to be explicable in terms of a clearly understood goal. It is likely that some goals will conflict with others.
- an action feedback loop, that is a series of actions over time aimed at solving the problem or just to find out more about what is occurring.
- time stress where decisions can be made in seconds, a day or a weekend. In these circumstances the extensive evaluation of multiple options is not possible.
- high stakes for the participants to whom the outcome is significant and who have a stake in arriving at a suitable outcome.
- multiple players where there is not just a single decisions maker. All of the participants have in common an understanding of the situation.
- organisation goals and norms where the values and goals pertain to the organisation and do not merely reflect the preferences of an individual.

Naturalistic decision making had its origins in studies carried out by Klein, Calderwood, and Clinton-Cirocco of fire ground commanders who made decisions under extreme time pressure (Klein et al., 1986). The findings of the study lead Klein to dispute models of decision making such as subjectively expected utility (SEU) theory. He developed the Recognition-Primed Decision (RPD) model (Klein, 1989, 1998) to describe how people make decisions outside of the laboratory situation, claiming that experienced decision makers do not have to compare the strengths and weaknesses of several options. Situation assessment enables them to generate a

feasible course of action which can be evaluated by mentally simulating it to identify any weaknesses. This strategy is known as the singular evaluation approach (Klein, 1998) which requires that options are generated and evaluated one at a time. Experienced decision makers recognise plausible goals and important cues which enable them to categorise situations and generate a possible solution which can be checked mentally to determine and, if necessary, rectify any weak points.

Klein and Crandall (1995) elaborated the role of mental simulation in problem solving. In order to test the viability of a solution a decision maker cognitively constructs a model and sets it in motion to see what happens. Variables in the mental model are instantiated and a sequence of actions run through to see if the outcome is favourable. The idea of using simulation in reasoning was suggested originally by Forbus and Stevens (1981). Kahneman and Tversy's (1982) also recognized that the plausibility of a mental simulation depends upon factors such as availability of information, ease of retrieval and memory for specific instances such as analogues. To Kahneman and Tversy (1982), this is a conscious, deliberate, highly analytic procedure where Klein and Crandall (1995) viewed it as an activity that can also occur under time pressure. For routine tasks, the results of a mental simulation are largely correct as the appropriate constraints have been taken into account (Nersessian, 2002). Some thought, though, has to be given to the constraints to include and the interactions between them (Kuipers, 2001).

Pennington and Hastie (1993) describe a type of mental simulation (based on the deliberations of jurors), that they describe as a story model. This explanation-based model allows decision makers to understand how a situation evolved by sifting through the evidence and organising the data into a coherent account of what happened. This is seen as applicable to situations like juror reasoning and medical diagnosis where the focus is on reasoning about the evidence. As Klein and Crandall (1995) observe, the model limits itself to incidents involving human agents capable of volition whilst they believe it can be extended to situations involving inanimate objects and forces in the future as well as the past. For example a fire ground commander could imagine how a fire might spread in order to decide how to position crews.

Klein (1998) also incorporates the concept of the story model (referred to as story building) into his latest model of RPD which now handles diagnosis when the nature of the situation is unclear. If there is a problem diagnosing the nature of the situation, for example the data collected does not allow a similar experience to come readily to mind, further action may be taken. One way to remove the uncertainty, is, following Pennington and Hastie (1993), by the construction of a plausible explanation of what is going on. A study by Kaemf *et al.* (1996) indicated that story building was the strategy employed on 12% of the occasions for diagnostic purposes and was often the key activity in the decision making process. The alternative means of establishing a diagnosis in RPD is through feature matching where relevant features are identified to determine the causal factors. This may require the gathering of more information.

Klein *et al.* (2003) more recently indicated that there are domains in naturalistic decision making (military command and control) that pose even more problems. In these cases, decisions are typically complex, with data overload playing a role. The situation is exacerbated by the fact that decisions have to be made when important aspects are not fully understood and few variables can be controlled or changed. In these cases, it is argued that practitioners need to develop what is termed macrocognition. To achieve this, the development of mental models, mental simulation, story building and uncertainty management are important. To help avoid failure in complex situations, Klein (2003) mentions that a pre-mortem can be held. Instead of holding a post mortem once things have gone wrong, the participants pretend that the failure has already occurred and try to find the weaknesses in the plan. Concerns can be expressed and improvements made if necessary.

Others researchers joined with Klein in focusing on real-world decision making. Lipshitz (1993) believes that the way in which a decision problem is framed is of critical importance. He quoted Dewey's (1933) remark that "The way in which the problem is conceived decides what specific suggestions are entertained and which are dismissed." Endsley (1988) emphasises situational awareness as the driving factor in the decision making process in real world environments. There are three levels of situational awareness: perception of critical factors in the environment, understanding what these factors mean in relation to a person's goals and an understanding of what will happen to the system in the future. A model of situation awareness is described which includes the use of schemata or mental models (these are seen as identical) which enable fine categorisations to be made based on a small amount of information. The identification of critical cues in the environment may proceed in either a data driven (bottom up) or goal driven (top down) fashion. Activities are selected, based on the projection capabilities of the model, to bring the perceived environment into line with the decision maker's plans and goals. A script may be available for executing the chosen plan otherwise a suitable action will have to be constructed based on the expectation of future events. If there is a conflict between the mental model and the events which occur after executing a plan, the model has to be revised and the current goal might have to be changed.

Lipshitz and Shaul (1997) also discuss the role of mental models and schemata in recognition-primed decision making but distinguish between them. They refer to the abstract cognitive structures that enable people to construct mental models as schemata. These domain specific structures (Neisser, 1976) direct the search process, specify which information will be acted upon, organise information in memory and direct the retrieval of information from memory. Lipshitz and Shaul (1997) define mental models as specific situation representations which are constructed and then discarded over time. It is this definition of a mental model that is used in the remainder of this literature review.

3.7 Expertise

The focus of this study is a farm management consultant who has "expertise" in the domain of farm management consultancy. This section reviews the literature on expertise in order to provide insights into the likely processes used by the case consultant in this study.

Sternberg (1997) recognizes the multifaceted nature of expertise. The aspects of expertise that are important in a particular field (dancing, physics, etc.) will depend upon the demands it makes of its practitioners. Studies of expertise have focused on many factors such as the role of knowledge, expert novice differences, training, memory, problem solving strategies, the role of heuristics, intelligence, life span development and the effect of practice (Chi, Glaser and Farr, 1988; Ericsson and Charness 1997; Hoffman, Feltovitch and Ford, 1997). In a review of the literature on expert novice differences, Pachman (2012) mentions the following differences:

- Experts are superior in knowledge, not basic capacities (Gobet and Simon, 1996), excelling only in their own domain (Chi, Glaser, and Farr, 1988).
- Experts remember better (Chase and Simon, 1973; de Groot, 1966.)
- Experts have better problem representations (Chi, *et al.*, 1981; Chi, Glaser and Rees, 1982; Schiano, Cooper, Glaser and Zhang, 1989; Hardiman, Dufresne and Mestre, 1989).
- Experts work forward (Patel and Groen, 1986; Kalyuga and Sweller, 2004).
- Experts spend more time analysing the problem (Glaser and Chi, 1988; Moore, 1990).
- Experts are better monitors of their performance (Chi, *et al.*, 1989).

Those domains which are knowledge intensive are dependent on schematic type reasoning (Patel and Ramoni, 1997). Bartlett (1932) defined a schema as denoting an active organization of prior reactions or experiences. A schema is thought to consist of elements, concepts and the relationships among them that are pertinent in some sphere of interest to an actor (Beach, 1990). Beach (1997) also mentions the special kind of schema known as a script (Schank and Abelson, 1977) which is seen to handle behavior when an appropriate sequence of actions is required. Targeted practice assists in the development of such schematic reasoning expertise (Ericsson, 2006). Sternberg (1997) notes that much of the research on expertise focuses on what he terms an experts' quantity-of-knowledge and organization-of-knowledge, but omits other important considerations. These he details as: superior analytical ability in solving problems; superior creative ability; superior automization and superior practical ability. Eraut and du Boulay (2000) point out that for doctors it is not only knowledge that is required, but also the ability to form working relationships with people (patients, their family plus other professionals) and act ethically.

Expertise is also discussed in the naturalistic decision making literature, with several studies of expert novice differences (see, for example, Serfaty, Macmillan, and Entin, 1997). Orasanu and Connolly (1993) point out the contradiction between the findings of various researchers into decision making. Researchers found that expertise was of little use in domains such as the judgement of clinical psychologists or economic forecasters. On the other hand significant differences were found in some domains between experts and novices with respect to the interpretation of problems, the strategies selected for problem solving and the information utilised as well as the speed and accuracy of problem solving. The crucial distinction between the results relates to the domain. As Orasanu and Connolly (1993) observe, expertise confers an advantage when the problem solving task has to be structured, ambiguous cues need to be interpreted and there is a reliance on underlying causal models but not when a significant amount of computation is required. Klein believes that expertise is the confluence of decision making, "sense making" of events and adaptable behaviour (2009, p7). It is the experts' understanding of the problem domain which enables them to diagnose problems and make predictions.

3.7.1 Expertise and farm management consultancy

Susanne Lajoie (2003) notes that since expertise is domain dependent, it is important to determine what experts know. Possible learning trajectories can then be defined and learning opportunities provided. The farm management consultancy process has been described in sections 3 and 4. The expertise displayed by the farm management consultants is now discussed in the context of the relevant literature with relevant examples from the research cited in sections 3 and 4.

3.7.1.1 Expertise and consultancy

Farm management consultants are brought in by farmers to give them advice. According to Kubr "Consulting is essentially an advisory service" (1996, p. 6). The consultant does not have the authority to determine what changes must be made and how they will be implemented, but must form an unbiased assessment of the situation and make recommendations. The consultant is only the secondary and not the primary decision maker (Yates, 2001).

Lippett and Lippett (1968) note that the quality of decision making in these circumstances is highly dependent upon the conceptual framework used to organise a consultation. Consultants may have to play one or more roles (Margerison (1988) and Kubr (1997). Those described by Kubr (1997) include: reflector, process specialist, fact finder, alternative identifier, collaborator, trainer, technician, expert and advocate. Consequently, many skills are required to function successfully as a consultant.

Margerison (1988) characterises the type of situation that is faced by farm management consultants as being of the problem solving kind (as opposed to solution centred). Since the problem is open-ended, the client has to understand the process by which the solution is reached, and is directly involved in managing the developing situation. Problems may occur with relation to data collection since in advisory situations people are not always prepared to supply the information required. Even if information is available it may only be provided if the right questions are asked and if the consultant is trusted and can follow up key cues and clues. Lippett and Lippett (1968) stresses the importance of the timely communication of ideas to the client. They observe that even the best solutions can be ignored if introduced at the wrong time. Persuasiveness and tact are called for. The solution depends for its success on the client's acceptance of details. When experts advise clients, Shanteau (2001) suggests that they will not necessarily agree about the nature of a problem and its solution. The experts are working in dynamic situations; their role is "to make sense out of chaos" and enable clients to make the final decision.

3.7.1.2 Expertise and problem solving tasks

Typologies for knowledge intensive reasoning tasks are discussed in the cognitive psychology and knowledge engineering literatures. Several problem solving tasks have been identified: assessment of the situation, classification, diagnosis, retrodiction (calculation of past values), modelling, monitoring, design (where there are many alternative courses of action), configuration (where a specific solution has to be developed), prediction, and scheduling (Schreiber *et al.*, 2000). All of these have to be handled as necessary by farm management consultants:

- Assessing the state of the farm, based on benchmarking, comparative analysis, observations etc.
- Classifying farms by climate, soil type etc.
- Diagnosing the cause of a problem
- Estimating previous pasture growth (retrodiction)
- Modelling the financial situation of the farmer, performing a financial analysis
- Monitoring the state of the farm over a period of time
- Considering several straightforward options
- Constructing a specific solution to handle an unusual problem
- Forecasting prices for the future
- Planning and scheduling activities to ensure the solution is viable.

Classification and simple diagnosis which both involve pattern matching are relatively straightforward involving feature matching. Klein (1998) incorporated the concept of the story building into the RPD which now handles diagnosis when the nature of the situation is unclear. If the data collected does not allow a similar experience to come readily to mind, further action may be taken. One way to remove the uncertainty is by the construction of a plausible explanation of what is going on (Pennington and Hastie, 1993; Kaempf *et al.*, 1996).

Benjamins and Jansweijer (1994) raised the important issue of "cover" in diagnosis which is only possible when the requisite knowledge is available. The proposed cause of a problem can be consistent with some observations at one end of the spectrum or cover all the observations at the other end.

Potential hypotheses are generated by the consultants after an initial data collection and assessment of the situation (based on benchmarking and comparative analysis). Further information may be collected, confirming or eliminating hypotheses by matching actual with expected values. The situation is complicated when there are several causes of a problem, for example the high empty rate is due to poor nutrition caused by low soil fertility and poor heat detection. It might be necessary when establishing a causal chain in farm management consulting to work systematically through system models to establish an explanation (Benjamins and Jansweijer, 1994). Since the farm management consultants defer the identification of causes and the proposal of solutions until they feel that they have as much information as possible, they endeavor to be at the cover end of the spectrum. They do not appear to employ the story building strategy described by Klein (1998) and Kaempf *et al.*, (1996).

With regard to solution generation, the farmer's goals and weaknesses, their financial situation, the resources of the farm, and legal requirements all have to be taken into account. Farmer preferences also have to be considered. When the situation is straightforward there may several alternatives. Some of these will be selected and compared to check their viability (the design problem solving task). Multiple options are often produced in advisory situations to give the client some choice with regard to the solution because they will implement it (Shanteau, 2001). When the situation is more complicated a solution might have to be tailored to the situation. The solution to the same problem on two different farms might be completely different. Occasionally, it is not even possible to select an option from the set of possibilities and a unique solution has to be developed (the construction problem solving task), based on domain principles and knowledge of the client's circumstances.

Possible solutions may be proposed after mentally checking that they are viable (Klein and Crandall's mental simulation (1995). The farmer who has to implement the solution determines which options will be considered, possibly combining aspects of the alternatives proposed. Subsequently, the option or options chosen by the client are then worked through formally (by developing budgets). In this respect, the process followed is similar to that described in normative models of decision making and avoids the problem of overly optimistic forecasts that can occur when depending on mental simulation alone (Yates, 2001). The alternatives are compared explicitly in terms of their future consequences (Lipshitz, 1993). The solution selected is not necessarily optimal but must satisfy the client. Two consultants may suggest different solutions to the same problem but this is to be expected according to Shanteau (2001) and does not reflect on their competence.

Klein (2009) observed that decision makers need to look both to the past (for situation diagnosis using story modelling) and the future (mentally simulating the likely success of a solution). The farm management consultants achieve this in a very sophisticated fashion. They are usually conscious of the fact that they visit the farm at one point in time and if necessary set out to try and recreate what happens at other times. Past events (history of the situation) often have to be taken into account to understand what is happening and to determine if there is an action feedback loop (Crozier and Ranyard, 1997; Orasanu and Connolly, 1993). Extensive information about the previous as well as the current state has to be collected. Farm management consultants might need to work out what happened on the farm in spring (number of stock on the farm three months ago). This process of estimation involves calculating the values for data points for example the pasture growth in spring. It goes beyond story building and is more like system reconstruction. It is useful in problem identification, diagnosis and solution evaluation.

Predictions are also made of what is likely to happen on the farm in the future, given various solution scenarios. The consultants are always acting in an uncertain environment where many variables have to be estimated based on informed sources of information (for example the buying or selling price of stock). They may look a few months, a year and several years ahead. Consultants also need to ensure that they can access several reliable sources of information (accountants, stock agents, lawyers, farmers, meat companies, banks, newspapers, professional organisations and the Ministry of Primary Industries). They can then make their predictions taking into account the situation of the farm with regard to climate, soil type, etc.

Managing uncertainty is important (Klein *et al.*, 2003). It relates to the problem of working in a situation which is information rich and where forecasts have to be made. During a visit the consultant has to ensure that the data collected is as reliable as possible and that any predictions need to be well-grounded in research. Various informal approaches to risk are followed. Managing information overload and checking of inferences based on display data are critical. The risk to reputation is high if ill-thought out proposals are put forward. Involving the client with the detail of a solution helps reduce this risk.

Farm management consultants have to able to think logically in order to be able to carry out so many different problem solving tasks in such a complex environment. Strong analytic abilities are needed, for instance, to diagnose the cause of complex problems. Farm management consultants have to be able to analyse accounts and understand key farm financial benchmarks. Whilst software is available to help prepare the financial analyses, being able to identify the key indicators is very important for pinpointing problem areas. Interpreting figures is an essential component of the logical thinking required by the consultants.

Analytic skills needed to be taught in situ according to Heuer (1999) who believes that "Thinking analytically is a skill like carpentry or driving a car. It can be taught, it can be learned, and it can improve with practice. But like many other skills, such as riding a bike, it is not learned by sitting in a classroom and being told how to do it. Analysts learn by doing."

3.7.1.3 Expertise and knowledge

The taxonomy of different knowledge types (Regoczei and Hirst, 1992): "what is" (declarative) and "how to" (procedural), public (easily available), and private (exemplars and heuristics based on experience), is useful to describe the different types of knowledge required by experts. These categories are helpful as they reflect the importance of having a theoretical underpinning of a discipline, possessing practical skills, keeping one's knowledge up to date, and learning through experience, respectively. These categories are not discrete; experience can lead to the consolidation or extension of declarative knowledge.

The Farm Management domain not only has a body of theory which can be studied at a tertiary and the postgraduate level but also has its own practical skills. There are competencies that relate to carrying out practical task on a farm, for example, using a plate meter to measure the height of the grass. Farm management consultants may have to demonstrate new techniques to their clients. Public knowledge plays an important role for farm management consultants in deciding what solutions would be viable in the future (for example, trends in stock prices). It supports the prediction, design and construction problem solving tasks. Consultants need to be aware of the latest research developments in farming and useful software applications etc. Private knowledge is experience based in the broadest terms. It can relate not only to what to do in certain circumstances but also who to contact to obtain relevant information. There are many sources of information including farmers, bankers, other consultants and academics.

Overall, these types of knowledge combined allow ill-structured problems to be understood. This is possible because the consultants' knowledge enables them to grasp what is happening, that is "the parts and relationships that constitute something" (Smith, 1997, p. 374).

3.7.1.4 Expertise and metacognitive knowledge

The role of metacognition, thinking about thinking (Flavell, 1979) is very important to ensure that practitioners can monitor their own activities and reflect upon them. It essentially allows them to exert control over what is occurring (Winnie and Nesbit, 2010) and adapt their work practices as necessary (Klein, 2009). The generic consultancy process for farm management consultants has been described above (see Figure 1). It involves the following stages: client contact, pre-visit analysis, observation, ice-breaking, preliminary discussion, farm inspection, problem resolution, reporting and follow-up activities. How consultants perform these activities varies considerably with consultants developing their own script, a special kind of schema (Schank and Abelson, 1977), for a visit to a farm. Scripts direct the consultants' activities before, during and after the visit, enabling them to adapt to the various people and situations they meet. Monitoring their own actions and behaviour is essential for the consultants (Hacker, 2001). Do they understand the goals of the clients? Have they obtained all the relevant information? Is their assessment of the situation correct? Winnie and Nesbit (2010) also point out the need to be alert to changes in the situation in order to select and implement successful strategies.

The farm management consultants may conduct a mental post mortem after the visit, identifying their own strengths and weaknesses. Writing up a report or letter to the client also offers opportunities for reflection. Reflection supports a vital activity, self-assessment which can lead to self-regulated learning (Kriewaldt, 2001). This requires people to set standards for their own performance (Winnie and Nesbit, 2010).

3.7.1.5 Expertise and information

Farm management consultancy can be characterised as "information rich", that is, a domain where a large amount of data has to be collected, assimilated and interpreted by practitioners (Kemp *et al.*, 2003). Information is collected about the state of the farm, its physical financial performance, the farm family, farm management policies, and the goals, knowledge and skills of the client. Information is collected principally

through aural or visual (accounts, maps, records) means although some tactile and olfactory cues may also be gathered on the farm. Information is collected in a piecemeal fashion, in a scrambled sequence as the consultant talks to the client or inspects the state of the farm.

Data collection is far from straightforward, since "assembling the facts" is a significant undertaking. Facts are not like fruit on a tree, waiting to be picked" (Davidson Frame, 2012, p. 36). Consultants with their considerable experience, though, do have the ability to set up or frame a problem, that is, view events in a context that gives them meaning (Beach, 1990, Lipschitz, 1993). This allows them to determine what purposeful activities (questions, observations) will help them understand the situation (Rosenhead, 1989). Framing problems "often requires higher-order thinking, because correct framing can entail dealing with subtle points." (Davidson Frame, 2012, p. 122). It is not only the obvious facts that are significant. However, Beach (1990) notes that re-framing is necessary when problem solvers realize that they are on the wrong track (the farmer does not have a feed problem but an animal health issue). Klein *et al.* (2006) have described the framing/re-framing process as sense making with problem solvers moving as necessary between the data and the frame. Perceptual discrimination is vital so that the appropriate information is collected and information overload avoided. Sense making is not a passive activity but also involves "knowing how to shake the system to find what you're looking for" (Klein 2009, p. 194).

It is possible for consultants to mis-frame a problem (Beach 1990). Prematurely coming to a conclusion is one of the hazards the farm management consultants have identified in their profession. If decision making (with regard to the nature of the decision problem and the options put forward) is not deferred, there is the risk that the option suggested is likely to be inadequate and prove unacceptable to the client. This does mean that the consultants have to pay close attention to what is happening around them. The consultants are building up a picture in a jigsaw like fashion. They might not obtain a key piece of information straightaway. Cohen (1993) suggests in his Recognition/Metacognition (R/M) model that decision makers who have time for a mid-course correction rectify the situation through additional observations or reinterpretation of cues. The consultants deliberately try to avoid having to make such a mid-course correction by gathering a large amount of information.

The information that is collected allows both the problem to be identified and possible solutions to be proposed. It relates, therefore, to both the problem and solution spaces where "The human's way of characterizing the problem or decision space can be called the problem space and the solution space, the range of potential solutions that might be recommended" (Simos, 1995). Ascertaining the goals of the client usually allows the consultants to cut down the extensive problem space. On some occasions, goals may only be revealed gradually during a visit. This can limit the extent to which information can be discarded at an early stage.

Consultants have to recognise relevant cues and collect data relating to the associated problem. Given the large amount of data that has to be collected on a first visit, consultants often have to deal with data overload, that is, they have to process and remember a large quantity of information (Miller, 1956; Endsley, 2000). Whilst some information is in records and some may be noted down, there is still a great deal to memorise and handle. One way of coping is by abstraction, that is, using a representation that omits the inessential details (thwink.org, 2014). A consultant, for instance, does not have to remember the temperature of a sick animal but just recognise that it has a fever. Another technique that is useful is gistification, encoding relative values of information (Durso, 1999). Only approximations (poor, average, and good) rather than absolute values need to be retained. Given the extent of information that is collected, farm management consultants prioritise this based on its perceived importance, essentially a weighting task (Durso, 1999). They do not dismiss other information (possibly encoded in relative terms), but tag it for easy retrieval if their perception of the situation changes. Some information is also documented for future reference. Overall, abstraction, gistification and information prioritization are all ways that assist farm management consultants to reduce information overload.

Missing data can be a problem. Given that a consultant arrives on a farm at a particular moment in time, it is impossible to find out everything that led up to the situation. If missing values cannot be obtained from tests, records or the client, it may be necessary to estimate them (the retrodiction problem solving task), for example, pasture growth rate based on records and information from the client about the earlier state of the farm.

Whilst some of the information obtained can be classified as reliable (records of milk quality) other pieces of information have to be derived from the display data, (Lipshitz and Shaul 1997), equivocal sensory data relating to what is seen, heard felt or even smelled. It is not appropriate, in these circumstances to make fine categorisations based on a small amount of critical data as Endsley (1988) suggests. Whilst many inferences are made by the farm management consultants, they do not rely on inferential reasoning alone (Hastie and Pennington, 2000). A "check back" process is used if necessary. Farmers can be asked to confirm or refute

whether a particular supposition is correct. Given the multiplicity of sources of information, sense can be made of a situation using data triangulation, cross checking what is said against observations and records.

Underpinning the data collection process is a rapidly changing representation of the current situation (Lipshitz and Shaul, 1997) as more data is collected and more cues are identified. The mental model can be very extensive, incorporating values obtained from the environment (Durso,1999), records, estimates and, also, the results of interferential reasoning.

3.7.1.6 Expertise and communication

Building rapport with a client is essential for complete cooperation and information elicitation (Margerison, 1988; Kubr, 1996; Kemp *et al.*, 2000). Appropriate body language, using the appropriate vocabulary and acting in a professional manner help to develop this. The approach followed has to be tailored to the farmer. The studies of the farm management consultants indicated that there is no one way to build rapport. Decision makers have their own style which suits their way of working.

Some information may only be provided in these domains if the right questions are asked. One farm management consultant would never ask questions starting with "why" since the client might see this as too threatening. Instead "how" questions were asked (Kemp *et al.*, 2000). The timing of questions is crucial. The consultants try to defer questions about sensitive issues until rapport had been established with the client. Listening to clients is also important (Kemp *et al.*, 2000). It can be essential to detect a mismatch between what people say and what they think (people do not readily admit that they cannot understand what they are being told).

Managing change poses problems in an advisory situation (Klein, 1998). Effective communication of intent is vital. Farm management consultants endeavor to ensure that the client understands the process that is being followed and that they are engaged in it (Kemp *et al.*, 2000). Misunderstandings have to be avoided with the decision maker and client having to collaborate and develop a shared understanding of the task. The way in which explanations are provided is determined by the client's ability to process new information.

3.7.1.7 Expertise and cognition

The cognitive skills of perception, memory and logical thinking are very important in farm management consultancy. Klein (2009) believes that expert decision makers can be both intuitive and analytic, that is reason automatically and reflectively. The automatic system is fast, automatic, effortless, emotional, and uses tacit knowledge (unconscious processing) whilst the reflective system is slower, effortful, deliberate, logical, serial and uses explicit knowledge. Recently, there has been a focus in the cognitive literature on these dual processing theories of the brain. Evans (2008) provides a comprehensive introduction to these theories, referring to the dual processes as System 1 and System 2 reasoning (Table 6). He considers many aspects of System 1 and System 2 thinking including not only conscious versus unconscious processing but also the evolutionary history of these systems, their functional characteristics and differences. He associates domain specific knowledge with System 1 thinking which can be stereotypical and domain general knowledge with the more abstract System 2 thinking.

System 1 reasoning is often described as intuitive. A comprehensive definition of this is provided by Betsch (2008, p. 4) "Intuition is a process of thinking. The input to this process is mostly provided by knowledge stored in long term memory that has been primarily acquired via associative learning. The input is processed automatically and without conscious awareness. The output of the process is a feeling that can serve as a basis for judgements and decisions." Based on this intuition, highly accurate judgements can be made provided the decision maker has met a representative sample of cases. Epstein (2008, p. 29) focuses explicitly on experiential learning, defining intuition as "the accumulated tacit information that a person has acquired by automatically learning from experience."

Table 6 Cluster of attributes for System 1 and System 2 processes (Source: Evans, 2008)

System 1	System 2
Cluster 1 (Consciousness)	
Unconscious	Conscious
Implicit	Explicit
Automatic	Controlled
Low effort	High effort
Rapid	Slow
High capacity	Low capacity
Default process	Inhibitory
Holistic, perceptual	Analytic, reflective
Cluster 2 (Evolution)	**Cluster 2 (Evolution)**
Evolutionarily old	Evolutionarily recent
Evolutionary rationality	Individual rationality
Shared with animals	Uniquely human
Nonverbal	Linked to language
Modular cognition	Fluid intelligence
Cluster 3 (Functional characteristics)	**Cluster 3 (Functional characteristics)**
Associative	Rule based
Domain specific	Domain general
Contextualized	Abstract
Pragmatic	Logical
Parallel	Sequential
Stereotypical	Egalitarian
Cluster 4 (Individual differences)	**Cluster 4 (Individual differences)**
Universal	Heritable
Independent of general intelligence	Linked to general intelligence
Independent of working memory	Limited by working memory capacity

The farm management consultants, working in an information rich and knowledge intensive environment, appear to have a great deal of tacit knowledge stored in long term memory and the ability to process it unconsciously. Betsch (2008, p. 6) comments on the symbiotic nature of the relationship between memory and unconscious processing stating that "Consolidation (for example via frequent repetition) enhances the likelihood that automatic processes come into play." Betsch (2008, p. 18) also claims that "intuition is almost unconstrained by capacity limit." The experiential system makes minimal processing demands on the brain because of what is described as long-term working memory (Erissson and Kintsch, 1995). The brain's ability to process information in parallel allows fast decisions to be made based on the totality of someone's prior experiences and not just on a subset (Betsch, 2008).

The expertise of the farm management consultants appears to be related not only to intuitive judgments but also considered, reflective, decision making (Evans, 2008). Their metacognitive and analytic skills enable them to retain control of the problem solving process whilst being able to quickly recognize important features of the situation. The reflective System 2 reasoning involved, according to Evans (2008), is supported by working memory which incorporates short term memory plus executive and inhibitory functions, enabling thinking to be under intentional control (Evans, 2008)

The System 1 and System 2 thinking exhibited by the farm management consultants can both be associated with heuristic processing (Evans, 2008, and Epstein, 2008) It is well-known that people regularly use heuristics or rules of thumb when making decisions (for example, protect your queen when playing chess). The heuristics associated with System 1, automatic thinking, are based on intuition as defined above. Experience allows assessments about the state of the farm or the skills of the farm to be made automatically.

Farm management consultants can also develop their own heuristics based on experience such as identifying the critical indicators when they analyse the financial situation of a farmer. Heuristics can then be used consciously as a short cut (Epstein, 2008). Interventions occur when people think critically or reflectively as occurs with the farm management consultants.

Gigerenzer and Gaissmaier (2011) have written at length about the conscious use of heuristics. Table 7 contains a summary of their key findings. They note that using heuristics consciously can achieve more accurate results than more complex strategies using more data, as long as they accurately reflect features of the environment (ecological rationality). They refer to this as the less-is-more effect. For classification and diagnosis using heuristic processing the use of what is termed a fast and frugal tree can be used where cues are searched in a pre-determined order and the search is stopped when a result is obtained.

Table 7 Key findings on the use of heuristics (Source: Gigerenzer and Gaissmaier, 2011)

"1. Heuristics can be more accurate than more complex strategies even though they process less information (less-is-more effects).
2. A heuristic is not good or bad, rational or irrational; its accuracy depends on the structure of the environment (ecological rationality).
3. Heuristics are embodied and situated in the sense that they exploit core capacities of the brain and their success depends on the structure of the environment. They provide an alternative to stable traits, attitudes, preferences, and other internal explanations of behaviour.
4. With sufficient experience, people learn to select proper heuristics from their adaptive toolbox.
5. Usually, the same heuristic can be used both consciously and unconsciously, for inferences and preferences, and underlies social as well as non-social intelligence.
6. Decision making in organizations typically involves heuristics because the conditions for rational models rarely hold in an uncertain world."

There is little empirical research on how heuristics are derived in farm management except for a study on farmer/consultant learning carried out in Australia. McCown *et al.* (2012) were interested in developing decision support software to help farmers and their advisers when the problems they faced were ill-structured. In these circumstances start states might be undetermined, goals unclear, the future difficult to predict and the constraints uncertain. In a study undertaken in Australia, participants were provided with a crop production simulator together with local climate data. The system was straightforward to use, ensuring that data collection and input were easy. The objective was to help farmers and their advisers manage climate risk when planting crops. When follow up interviews were held several years later, it was found that the procedures which had been readily adopted initially had fallen into disuse with simpler and cheaper methods replacing them. Instead, for instance, of measuring the water content of soil one farmer reported that "Now it's just a matter of look and feel. I started with measurements and later just estimated, squeezing the soil where it was wet" (McCown *et al.*, p. 37). One consultant commented that the measure the water content of the soil was still measured but in a cruder fashion. It was not the accuracy of the measurement that was important but the accuracy of the decision. Learning has taken place with the farmers/advisors appearing to have developed their own heuristics. McCown *et al.* (2012, p. 44) observed that "This surprising learning pathway that goes from the simplicity of intuition to the complexity of analysis and partway back toward a new enlightened intuition." The conscious use of heuristics, though, is often seen as another example of reflective, thinking albeit not so complex (Epstein, 2008). Gigerenzer and Gaissmaier (2011) note that using heuristics explicitly can be more accurate than complex strategies when processing information (the less-is-more effect).

3.7.1.7.1 Embodied Cognition

Embodied cognition is another relevant area of interest since farm management consultants operate in the kind of environment where perception, cognition and action are interlinked (Kellman and Massey, 2013).

Wilson (2002) has identified several possible aspects of embodied cognition:

1. Cognition is situated. Cognitive activity has a real world context, that is, it functions in a real world environment.

2. Cognition is time pressured. "We are mind on the hoof" (Clark, 1997). People have to cope with the pressure of working in real-time.

3. The cognitive workload has to be reduced because there are limits on attention and working memory. The information in the environment is collected on a "need-to-know basis".

4. The cognitive system includes the environment because the information flow "between mind and world is so dense and continuous."

5. Cognition has to be linked to action. The function of the mind is to guide action, and cognitive mechanisms such as perception and memory must be understood in terms of their ultimate contribution to situation-appropriate behaviour.

Farm management consultants who visit farms can indeed be seen as "mind on the hoof." They have to be very aware of the environment in which they work, often under considerable time-pressure. Perceptual discrimination is very important (Klein, 2006).

3.8 Summary

Sections 3.0 and 3.4 described how expert consultants solve problems whilst Sections 3.6, 3.7 and 3.8 have identified the problem solving processes, knowledge and skills required to enable them to succeed. The analysis of the problem solving skills of the consultants revealed that the model proposed by Rogers *et al.* (1996) could be extended. It is not only the rapport building process that underpins the problem solving process but also the metacognitive skills of the consultants which allow them conscious control of the process being followed. The script provides the framework for the activities of consultants before, during and after a visit to a farm. It also allows consultants to see a problem in context, framing and re-framing (if necessary) their analysis of the situation.

The consultants have to manage both the problem and solution spaces. The consultants build a mental model of the situation; their schemata (Lipshitz and Shaul, 1997) appear to act as templates with slots that can be filled with some values obtained from the environment (Durso, 1999), others from records and some from estimates. In straightforward cases, the consultants' mental model of the problem enables them to recall similar situations and how the problems were resolved (variously described as pattern recognition (Klein, 2009), System 1 reasoning (Evans, 2008) and experiential processing (Epstein, 2008)). In more difficult situations, it appears that System 2 reasoning (Evans, 2008) also occurs where there is a conscious attempt to formulate a solution. This still relies heavily on the knowledge stored in long term working memory which underpins the search to determine the components of a plan and whether it would work. It appears that links are forged between pieces of information that are not usually connected. This could be attributed to a superior selective encoding insight (Sternberg (1997), that is the capacity to exploit characteristics of the situation (Smith, 1997).

Table 8, developed from the literature, shows the activities associated with building and checking the models for the problem and solution spaces. The emphasis when building the mental model of the situation is on data collection, handling information overload and managing the uncertainty relating to the process being followed. The solution model includes the inputs that have to be taken into account, ways to generate options and methods to check their validity.

Table 8 Managing the problem and solution space

Build and check mental model	Build and check solution model
Data elements	**Inputs to the option generation task**
Display data	Data from mental model (constraints, preferences)
Estimated/ calculated values	Data from similar situations
Recorded information	Predictions of future state
Inferred data	Data from publicly available sources
Handling data overload	**Generate options**
Goal identification	Choose from alternatives
Abstraction	Tailor to client

Gistification Prioritisation Memorisation Documentation	Develop unique option
Manage uncertainty Generate and test hypotheses Verify data Order tests Estimate missing values Data triangulation	**Manage uncertainty** Generate and test solution model • Mental simulation • Formal evaluation Predict values as accurately as possible using reputable sources of information. Involve the client in the details

3.8.1 Challenges in training

The aim of this study was to describe the processes used by an expert farm management consultant so that there processes could be used in the training of novice consultants to enhance their capability. This section reviews the literature on training, learning and the development of expertise.

When training junior consultants there are many challenges beyond the obvious ones of ensuring that they have the appropriate theoretical knowledge and practical skills. The junior consultants also need to be aware of the professional and ethical standards they are required to meet (Davidson Frame, 2012; Kenny and Nettle, 2013). Support has to be provided to help the junior consultants develop System 1 and System 2 thinking (Evans, 2008). They have to be able to integrate the large amount of declarative knowledge so that it becomes compiled and proceduralised as tacit knowledge. Trainees should be helped to develop their own script (Schank and Abelson, 1977), way of working, for a farm visit based on models in the literature, those of consultants they work with and their own experience. They also need excellent rapport building and communication skills (Williams *et al.*, 1997a,b; Kemp *et al.*, 2002). More specifically the consultants need to be able, with appropriate experience to:

- Consciously keeping control of the problem solving procedure, monitoring the process being followed (Section 3.8.1.4).
- Incorporate the findings from research about useful problem solving processes, for instance how to handle an enterprise mix problem (Figure 10).
- Forge good working relationships with farmers and others (Section 3.6.1.1, Section 3.8.1.6).
- Identify critical cues (Section 3.8.1.1, Section 3.8.1.5).
- Devise effective ways of information collection (Section 3.8.1.2, 3.8.1.5).
- Know how to ask appropriate kinds of questions, avoiding those which seem too judgemental (Section 3.6.3).
- Listen properly in order to be an effective agent of change (3.8.1.6).
- Take into account the environment they are working in (Section 3.8.1.5).
- Manage data overload (Section 3.8.1.5)
    - Goal identification
    - Abstraction
    - Gistification
    - Information Prioritisation
- Manage the uncertainty in the problem space (section 3.8.1.5)
    - Checking back to verify the data collected
    - Data triangulation
- Generate more than one option in typical situations (Section 3.8.1.2).

- Appreciate that data elements can be associated with both the mental model of the problem and the solution model. (Section 3.8.1.5).
- Manage uncertainty in the solution generation process (Section 3.8.1.2).
    - Mental simulation
    - Formal evaluation
    - Involving the farmer in the details of the solution
    - Obtaining information from reputable sources
- Develop their own heuristics (Section 3.8.1.7).
- Be aware of the necessity for reflection, carrying out a mental post mortem if required after a visit (3.8.1.4).

3.9 Learning and expertise

Hubert and Stuart Dreyfus (1986) proposed a five stage sequence of developmental stages from novice to expert: *novice, advanced beginner, competent, proficient* and *expert*. Educationally, the goal is to move the advanced beginner/competent consultants more quickly to proficiency and expertise. With regard to Farm Management Consultancy, there is a large body of knowledge and skills to be learned (even if specialists can be consulted occasionally if necessary). See Table 4 for the list of competencies required. Trainee consultants should already have suitable knowledge structures in place and be aware of relevant underlying principles from their prior studies and job experience (Andrews and Fitzgerald, 2010) The results of the survey (Kenny and Nettle, 2013) indicate that many consultants have a relevant degree. University students have usually worked on realistic problems and may have also been introduced to reflective practice in their studies.

Constructivist approaches are typically employed by educationalists to assist in developing the skills necessary for problem solving. The constructivist philosophy is underpinned by a focus on active rather than passive learning, practice in an appropriate context and collaborative work (Duffy and Jonassen, 1992) where possible. The educator is a facilitator who has the responsibility of assisting each individual to develop and refine their skills. Students need to meet the same basic material in a variety of different ways. Various teaching methods can be employed. The use of stories is seen as helpful since these "are the most natural and powerful formalism for storing and describing experiential knowledge." (Jonassen and Hernandez-Serrano, 2002). A problem-based learning approach is often followed where groups of students work on ill-structured problems. This scenario based approach is often advocated for advanced learners, but Jonassen (2000) points out that scenarios are not scalable and do not test skills in situ. Additional support, scaffolding (Vygotsky, 1978), allows more difficult problems to be tackled. Checklists and guidelines have been found useful in medicine but Benner *et al.* (2008) warn of undue reliance on them. Worksheets have been developed for law students which not only describe the process to be followed but also include hints that helped the students to complete tasks successfully (Nadolski *et al.*, 2006).

Technological support can be provided for problem solving. Case based software can enable the indexing and retrieval of suitable stories. The problem based learning approach can be supported by scenario-based learning software (Lajoie, Azevedo and Fleiszer, 1998; Stewart, 2004). Challenge Workbook enables students to work together on ill-structured problems allowing them to develop an electronic document which shows the learners' reasoning processes and solution. The educator can provide the necessary guidance and feedback (Stewart *et al*., 2007). Other types of educational teaching systems can be useful. There are several in the domain of medicine (Martin et *al.*, 2009; Naismith and Lajoie, 2010). Virtual environments are used when training the military (Hoffman *et al.,* 2010), Kemp *et al.* (2005) describe a system, Smart Consult which helps people to ask the right questions on a farm visit.

With respect to the development of skills, Gagné (1965) favoured component practice over total simulation. He wondered whether any skills were ever effectively learned "all at once" exclusively through practice on the job or on fully realistic simulators. The problem of effective training was not about making the tasks similar, but rather arranging the conditions of practice in a way that essential skills were most efficiently learned. Learners also need to be instructed in the use of metacognitive techniques since this helps to improve problem solving skills (Poyla, 1957; Cardelle-Elawar, 1995; Schoenfeld, 1985; Hacker, 1998). Livingstone (1996) thought that the most effective means of metacognitive instruction is to provide practice in both metacognitive and cognitive processes, being able to evaluate the results of their effort. Knowledge and strategies about how to use it need to be linked.

Paris and Paris (2001) mention that authentic assessments and portfolios of work (Klenowshi, 2002) can help promote self-regulated learning. The use of a student journal or diary has also been advocated in which students "reflect upon their thinking, make note of their awareness of ambiguities and inconsistencies, and comment on how they have dealt with difficulties."(Blakey and Spence, 2008). Recently the idea of a wrapper has become popular. According to Lovett (2008) a wrapper is an extra activity associated with a learning task which assists with self-monitoring. For instance, students attending a lecture can also be asked to state at the end which were the three key points made by the lecturer. This helps them to identify key issue when listening to the lecturer.

3.9.1 Developing Expertise

Ericcson and Kintsch (1995) noted that that in order to attain high levels of performance, experts can rapidly encode information in long-term memory enabling them to quickly access the relevant information through retrieval cues. There is no "strict separation between memory, knowledge and procedures" when considering skilled performance (Ericcson and Delaney, 1999.) This long-term working memory frees up working memory for experts as Feldon (2007) pointed out, enabling them to focus on other cognitive tasks. Recent research in neuro-imaging supports the long-term working memory theory (Guida *et al.*, 2012).

This dramatic change in our understanding of what is meant by memory for skilled performers has several implications (Kirschner *et al.*, 2006). Memory is effectively the work engine of cognition. Experts are skillful because long-term working memory contains so much information that they are often able to automatically find good solutions. Given the large knowledge base an expert requires, Kirschner *et al.* (2006) see the educational tasks, the aim of instruction, as altering long term memory in order to support skilled performance. Accelerated learning has been proposed as way to help people become proficient more quickly than would usually be the case.

3.9.1.1 Accelerated learning.

Accelerated learning has been studied in many different contexts sports/music, medicine, the military and the business environment. One of the most well-known pieces of research with regard to improved performance relates to targeted practice (Ericsson et al., 1993). Ericsson and Lehmann (1996) observed that targeted practice and not merely experience is required to achieve expertise. Ericsson (2006) re-iterated that proficiency is not gained from routine work but deliberate attempts to improve particular aspects of performance with appropriate feedback provided. In her review of studies on deliberate practice, Pachman (p 2012) claimed that "cognitively, conventional practice does not account for a substantial refining of existing schemas." She cites, *inter alia*, research carried out by Plant *et al.* (2005) which indicated that the amount of time that university students spent on their studies did not predict their academic performance. On the other hand, a model of the quality of their effort, taking into account their prior knowledge and extent of deliberate practice did. Not surprisingly there is a debate currently about the importance of innate talent in achieving expert performance (for example, are some people perhaps intelligent/ more athletic than others). This issue is yet to be resolved (Hambrick *et al.,* 2014). On the other hand, there seems little doubt that an improvement in performance (although not necessarily attaining expert levels) can be obtained through targeted practice which has the result of improving the quality-of-effort.

The format of the tasks used in deliberate practice regimens is important for the consequences of the practice. It is assumed that the learner is motivated to attend and to practice these tasks with the goal of improving performance. Pachman (2012) concluded in her literature search that the format of the tasks practiced was importance in developing expertise. They should:

"1) be well-defined tasks,

2) be challenging in relation to their level of difficulty but achievable (Ericsson, 1996) - the task design should account for a learner's previous knowledge,

3) be aimed at learner's weak areas, so that specific goals for improvement can be formulated (Ericsson, 2006),

4) be not always enjoyable,

5) require constant attention and effort. Grape, *et al.* (2003) in their study of professional and amateur singers found that professionals were more achievement-oriented, applied more effort and perceived the activity as less joyful than amateurs,

6) not last more than one hour without rest (Ericsson, 2006)."

The last of these suggestions is more applicable to tasks that are clearly delineated, e.g. practice in sports and music rather than problem solving activities such as military command. Pachman (2012) also notes that for deliberate practice to work the learner's knowledge base and areas of weakness have to be established.

Measures that can be taken to improve an individual's performance must be identified. Adjustments to deliberate practice activities will have to be made as performance improves.

More recently Duvivier *et al.* (2012) defined the deliberate practice that medical students should engage in as:

- repetitive performance of intended cognitive or psychomotor skill (for first year students)
- rigorous skills assessment
- specific information feedback
- better skills performance.

Duvivier *et al.* (2012) also described the personal skills learners needed to exhibit at various stages in order to develop their skills. Students need to be organized, focus on their studies, practice as necessary and assess their learning. Initially, students need to learn from their instructors but be able to move on to self-assessment. In order to be able to make this move appropriate feedback has to be provided at an early stage. Whilst this research was carried out with medical students, the overall findings indicated the need for students to be motivated, organized and, ultimately, self-reflective.

3.9.1.1.1 Postgraduate education in medicine

A great deal of thought has been given to postgraduate education in medicine where it is necessary to help new doctors become proficient as quickly as possible. Eraut and du Boulay (2000) carried out a lengthy review on how to develop the attributes of medical professionals once they had qualified. Doctors are expected to be professional, ethical and able to deal with people. There is the large body of knowledge that needs to be integrated and many different kinds of skills are required. Good doctors according to Eraut and du Boulay (2000) need to:

- Discern key features of a problem in a complex way
- Go beyond the guidelines
- Use intuition, but rationally checked out expertise
- Make small approximate decisions and readjust as necessary

In their opinion doctors have to develop standard patterns of reasoning and problem solving, quickly recognizing which approach to use and when. There is the requirement to track down and use evidence, being aware that mistakes can be made. Eraut and du Boulay (2000) also emphasized the need for doctors to be able to monitor their expertise. On a wider front, doctors should support the learning of others and share their knowledge with them effectively.

Eraut and Du Boulay (2000) looked in depth at medical training practice. The detail need not concern us but the implications for training are of interest. They believed that the proposals of Rehehr and Norman (1996) were still appropriate. Reasoning skills should not be taught independent of context. Practice is required to help people retrieve information from memory and improve their problem solving practices. Exposure to a variety of cases is seen as helpful for concept formation, categorization and pattern recognition. Doctors also ought to be aware of situations where heuristics might fail.

After graduation, doctors expect to continue their professional development both informally and formally. Informally they might read journals, interact with drug company representatives and talk with colleagues. More formally they will be supervised and mentored on the job, learning from these experiences (post mortems of critical incidents can assist with this). They can also become more specialized, taking the appropriate courses. Doctors are expected to engage in lifelong learning with professional development being learner directed.

New nurses too are expected to continue their learning after graduation. A great deal of emphasis has been placed on educational issues in nursing and the value of experience. Gadamer was quoted by Benner el. (2008) as saying in an interview (Joy, 2005, p. 403) that "Being experienced does not mean that one now knows something once and for all and becomes rigid in this knowledge; rather, one becomes more open to new experiences. A person who is experienced is undogmatic. Experience has the effect of freeing one to be open to new experience … In our experience we bring nothing to a close; we are constantly learning new things from our experience … this I call the interminability of all experience". Experience, therefore is not only necessary to

improve the practice of nurses, but to make them aware that they will always need to be receptive to new ideas.

Benner *et al.* (2008, p. 8) caution that "Experiential learning requires time and nurturing, but time alone does not ensure experiential learning." Years of experience are not an adequate predictor of expertise. Experiential learning, though, is still necessary given the role of intuitive reasoning in nursing. Nurses can face conflicts when asked to conform to checklists, guidelines and standardized documentation which can interfere with their System 1 reasoning.

Finally, Benner *et al.* (2008) noted the value of using challenging situations such as an adverse event for educational purposes. Such incidents reveal differences in the speed and flexibility of the responses, providing learning opportunities. They believed that performance of nurses could be improved with extensive training (using simulation of adverse events) and the provision of appropriate feedback. There should also be opportunities for reflective learning.

3.9.1.1.2 Accelerated proficiency and facilitated retention in a military context

Two workshops were held for the US military, one in 2008 and the second in 2009 , on accelerated learning A report integrated the findings from these plus a lengthy literature review (Hoffman *et al.,* 2010). It was agreed that experts needed a deep understanding of knowledge and the ability to use it flexibly. To accelerate the necessary learning, it is important "to increase the rate at which highly proficient performance is achieved" otherwise, it can take up to 10 years of experience to become an expert (Hoffman, 1998). This workshop aimed to find ways to try to reduce this time in particular when training the military. The questions that the attendees wanted to answer included the following:

"How can we develop methods for identifying expert mentors and revealing their knowledge and strategies?

How can we best design training to promote skill retention and prevent skill decay during periods of hiatus?

How can we train for adaptivity and the need to cope with the ever-changing workplace?

How to quicken the training process while maintaining its effectiveness (*Rapidized Training*)?

How to train and train quickly to higher levels of proficiency (*Accelerated Proficiency*)?

How to insure that training has a stable and lasting effect?"

After reviewing the relevant literature, the following findings were reported.

- There are many variables affecting training such as type and sequence of practice, domain complexity, learning styles etc. The interactions between these can be complex.
- Feedback is useful but the provision of this has to be timed appropriately.
- Training should make learning easier and quicker. "In initial, intermediate and advanced levels of training, there must be problems that present "desirable difficulties." (2010, p. 114)
- Mentoring generally benefits the trainee as well as the organisation. It might not be necessary at advanced stages of learning.
- In complex domains, scenario-based training is invaluable.
- There should be training for meta-cognition, often called "reflective training" or "training to learn."
- People can learn more from their mistakes than from their correct actions/decisions.

Overall, they concluded that "Accelerated proficiency can be achieved through the use of case-based instruction and realistic tough cases with a focus on errors and "desirable difficulties." (2010, p. 14). Teaching material must be based on relevant expertise. Training for accelerated proficiency must rely upon meaningful, corrective feedback that is appropriately timed (neither too close nor too distance from the performance being evaluated). The detailed suggestions for scenario based training are listed below (2010, p. 148):

- "The scenarios are tailored to learners (individual and/or group), depending on level of achievement, preparedness, or other factors.
- Scenarios are created from lessons learned.
- Scenarios are created based on empirical knowledge on how highly proficient workers apprehend problems.
- Scenario training assumes high intrinsic motivation of the trainee to work hard, on hard problems.

- For any given level of training, the scenarios are tough. They are novel to the learner, challenging them in ways described by Cognitive Flexibility Theory
- Typically there is some adversary, such as a superior or more capable opposing agent or force.
- The trainee is challenged to learn to think like the adversary.
- The fidelity is as high as needed. (In order: desktop exercises using paper and pen, virtual worlds presented on computer monitors, virtual environments, very high fidelity simulators, simulated villages).
- Scenarios mimic the operational context.
- There is a designed-in ability for observers to measure what happened.
- The observers are experts.
- There are multiple reviews, not one single "after action" review.
- Reviews provide outcome and process feedback.
- Reviews include retrospection and the analysis of decision processes, emotional state of mind, teamwork, mental projection to the future, and other macrocognitive processes.
- The goal is for trainees to acquire strategic knowledge, adaptability, and resilience."

Andrews and Fitzgerald (2010) also wrote at length about accelerated learning in a military context. The US Department of Defence which is interested in improving battlefield performance has defined the domain independent aspects of accelerated learning generally as "any learning system or environment that attempts to control for *time* spent versus *content learned."* The goals of accelerated learning are the "faster attainment of skill and knowledge, and an increase in on the job performance with better retention of learning" (Andrews and Fitzgerald, 2010).

In their review of the literature on expertise Andrews and Fitzgerald (2010) comment on the often mentioned finding that it can take ten years to become an expert. It is not uncommon, however, in their opinion for a recognized expert to have been working for 20 or even 30 years." Expertise can only be developed by an individual who has performed many relevant and diverse tasks. It is also crucial that the skills developed are retained. Andrews and Fitzgerald (2010) described the results of a meta-study carried out by Arthur *et al.* (1998, p. 4) on skill retention. Several factors were identified as playing a role in skill decay:

- "The longer the retention interval, the less retention of the skill is evidenced.
- Natural, physical, and speed-based tasks do not evidence as much skill decay as cognitive, accuracy or artificial tasks.
- Many of the past studies of over-learning suggest that over-learning moderates skill decay. The meta-analysis offers some support for this contention; however, a small number of data points are a limiting factor.
- The similarity of the training task to the actual environment affects retention. Transfer and retention of competence is more likely the more closely the two environments are matched."

Andrews and Fitzgerald (2010) include in their report a framework for competence developed by Wulfect (See Table 9). Competency factors with their associated learning guidelines are shown in Table 9.

Table 9 Framework for competence (Source: Andrew and Fitzgerald, 2010)

Competent performers know a lot. Their knowledge is highly contextual	Training must provide increasingly detailed knowledge, procedures, and principles, in context, with progressive refinement as expertise develops.
Competent performer's knowledge / skills are compiled and proceduralized.	Provide sufficient practice for experience to be compiled.

Competent performers tend to work forward from underlying principles rather than backward from the end goal.	Provide underlying principles as part of the knowledge structures. Provide unstructured end-goal exercises only after principles have been learned.
Competent performers examine a broad range of alternatives rather than explore a single alternative deeply.	Practice environment must provide for many alternatives and must model them correctly.

The learning guidelines relate to the development of competent performance emphasising the need for essential principles in a domain to learned and then practiced in appropriate environments. Andrews and Fitzgerald (2010) define a set of goals for accelerated learning. Following these should enable educators to support the development and retention of expertise. The first goal is to ensure that methods of speeding up knowledge acquisition are not harmful to learning. The second goal is to assist learners (on a spectrum from novice to expert) to acquire the relevant knowledge and the skills. The third goal is to assist people generalize from one situation to another. Rich meaningful feedback has to be provided during learning. Hard, tough, problems need to be tackled with mentors supporting and motivating people during this process.

Andrews and Fitzgerald (2010) discussed other proposals for accelerating learning from the literature. Some of these were particularly relevant to the military but others were more general. Rohrer and Taylor, (2008) suggested that when learning content, the relevant material should be presented at intervals over a long period of time rather than being studied intensively in a short time span. Sufficient repetition should ensure mastery of the material. Another suggestion (Chi, 2000) relates to using self-explanation in order to enhance learning and updating one's mental model. Active retrieval of material also promotes effective learning (Karpicke and Roediger, 2008).

Finally, the risks associated with accelerated learning were discussed (Andrews and Fitzgerald, 2010). Care has to be taken that when accelerating learning that there are no negative effects. Accelerating learning might impede the generalization process. It is possible that faster training makes people less effective performers.

3.9.1.1.4 Deliberate practice in business

In a work environment, the practice patterns of insurance agents were analysed by Sonnentag and Kleine (2000). Based on interviews, diaries and performance ratings, they concluded that the performance of the agents could be predicted not by the cumulative amount of practice but by the current amount. This seemed to be related to the changing nature of the insurance business.

Fadde and Klein (2010) have written in a business context about accelerating expertise in natural settings, that is in the work environment where people have little time to practice and develop quickly the relevant experience. Ericsson (2006) had previously described the role of deliberate practice to target deficiencies in performance. In the work place, Fadde and Klein (2010) define deliberate practice "as activities that are specifically designed to improve domain-specific skills." These activities can be pursued as part of their daily routine by people who are competent and not novices. Four kinds of deliberate practice are proposed: estimation, experimentation, extrapolation, and explanation the work place. They note that this is similar to just-in-time training where situations that occur can be used as opportunities for learning. Deliberate practice, though, emphasizes the need to build up tacit knowledge and intuitive reasoning processes in the domain. Such practice has to be linked to varied tasks and should not impact performance negatively. Repetition is desirable with timely feedback provided. Tasks should become more difficult over time.

Estimation exercises were seen as invaluable by Fadde and Klein (2010) whether to calculate the time or resources required to finish a project or to learn about other variables. Comparing actual to estimated values fosters learning especially if the reasons for any discrepancies are identified. Experimentation, trial and error learning is also seen as very important by Fadde and Klein (2010). They describe the three types of experimentation advocated by Schön (1983): exploratory, move-testing and hypothesis testing. Exploratory testing allows people to get a feel for what is happening whilst move-testing gives them the opportunity to take action to see if it produces a particular result. Finally, hypothesis testing enables competing theories to be checked.

Extrapolation according to Kadde and Klein (2010) relates to the way people extract the lessons learned from incidents which could have or did end in failure since "Surprises lead to reflection, and failures lead to the most intense, and therefore most valuable, reflective learning experiences." The point of extrapolation is not to avoid

making mistakes but see what can be learned from them. Explanation is related to the other three activities which provide opportunities for reflective explanations either internally or with others. Explanations enable people to make sense of what has happened. Unfortunately, feedback obtained this way is not necessarily accurate. Fadde and Klein (2010) conclude that the success of deliberate practice largely depends on the ability to draw the appropriate inferences and make diagnoses based on outcome data. How these ideas for practice can be applied in a specific organization must be worked out by individuals and those responsible for training.

4.0 Results & Discussion

4.1 Introduction

The study has identified some aspects of the consultancy process that have not been previously reported in the New Zealand literature. The importance of securing a first visit to a client and the processes used to achieve this have been identified by the consultant as a critical aspect of consultancy, but an area that has had limited attention in the literature. Similarly, the consultant's use of an "engagement visit" to secure a client is another finding that has previously not been reported in the literature. Social capital was used by the consultant to gain access to clients, access to information and access to both practical knowledge from farmers and access to scientific knowledge from scientists and academics. Although social capital has been reported to provide individuals with access to information, knowledge and resources (Adler and Kwon, 2002; Hall and Pretty, 2008a,b; Fisher, 2013), this has not been in relation to farm management consultancy in New Zealand. Other findings from the study are in line with the literature. The physical process of the consultant's consultancy visit is similar to that reported in the literature (Rogers et al., 1996b; Gray et al., 1999a,b; Bruce 2013). The study also found that the problem solving process used by the consultant was similar to that reported in the literature (Rogers et al., 1996b; Gray et al., 1999a,b). As with other studies (Rogers et al., 1996b; Gray et al., 1999a,b), this process could be usefully separated into two interdependent processes, a rapport building process and a problem solving process underpinned by the consultant's metacognitive skills which enable him to stay in charge of the proceedings (Winne and Nesbit, 2010). Although not a focus of the study, rapport building was identified by the consultant as a critical aspect of consultancy, a point made by several other authors (Rogers *et al.*, 1996b; Williams *et al.*, 1997a,b; Gray *et al.*, 1999a,b; Kemp *et al.*, 2000). The following sections will describe the case consultant and then compare the findings from the study with the literature.

4.2 Case description

This section describes the key characteristics of the case consultant to provide the context for interpreting and understanding the results of the case study (Table 10). The consultant was from a non-farming background, but his grandparents owned a dairy farm and he spent weekends and holidays on the farm. The consultant left school and enrolled in a B.Agr.Sc degree from which he graduated in the early 1980's. He then joined the Advisory Services Division of the Ministry of Agriculture and Fisheries as a trainee advisory officer. He was located in Northland and worked in the area for five years. During this time, he was mentored by a senior staff member and provided advice across a broad range of farming types (e.g. sheep and beef, dairy and goats). He then moved to the west coast of the Lower North Island and continued his role as an advisory officer. For the first five years on the west coast of the Lower North Island he operated as a public good extension agent for the Government. The Government then commercialised the extension service and there was a transition period of five years when it moved from a public good organisation to a fee-charging commercial consultancy business. The organisation began charging fees in 1987/88.

Table 10 The characteristics of the case consultant

Characteristics	
Background	Non-farming
Education	B.Agr.Sc.
Experience, as a commercial consultant	27 years
Focus of consultancy business	Farmer clients
Number of clients	40 - 45
Client turnover rate	1 – 2 per year (2 – 5%)
Chargeable hours/annum	1800
Predominant visit type	Repeat visits
Predominant focus	Production management

With the commercialisation of extension, the consultant asked himself two critical questions: 1) Given I can't cover everything and remain knowledgeable, what should I focus on? And 2) Where is the money? From these two questions, he decided to focus on dairying. He also believed that it was an easier sector for a consultant to break into than sheep and beef. The Ministry of Agriculture was restructured into MAFTech as part of the transition and then in 1995 the Advisory Services division of MAFTech was sold to Wrightsons, a commercial agribusiness company. The consultant has remained with PGG Wrightsons since 1995. The consultant has had 32 years' experience in the extension, consultancy area with 27 of those years' experience as a commercial consultant. Over those years as a commercial consultant, he has continued to undertake basically the same job which is the servicing of his dairy farmer client base. He has noted that under the different organisations he has had different KPI's, but his main focus has been to service his client base.

The consultant stated that it took him 3 – 5 years to develop a client base. He pointed out that the building of a client base takes time and it cannot be developed quickly. The focus of the consultant's business is farmer clients. Unlike some other consultants, he does limited project work. The consultant's client base would include around 40 - 45 farmers (Table 10) and he may visit these clients from between 1 – 2 times per year up to 10 – 12 times per year. Of the 40 – 45 clients, two to three of these farmers would own up to 10 farms. As such, the client base is not reflected solely in the number of clients, but also the number of farms per client. The consultant pointed out that a successful consultant needs to have two to three large clients. He also noted that he helps his clients grow their businesses. As such, many of his clients started with one farm and now own four or five. This helps the consultant expand his consultancy work because he now has four or five farms he has to visit for the client as opposed to the one farm. The consultant would only turn over 1 – 2 clients per year (2 – 5%) because his priority is to retain his client base. The consultant estimates that his chargeable hours are about 1800 hours per annum.

The majority (80 – 90%) of the visits the consultant undertakes throughout the year would be repeat visits as opposed to first visits to new clients. Most of the consultant's clients would be on either a 1 or 2 month visit cycle throughout the year. The consultant pointed out that repeat visits are much more efficient from a consultancy business perspective. A first visit has high time costs and the consultant has to collect a large amount of new information on the client. In contrast, for a repeat visit, the consultant already knows a considerable amount about the client and their farm business. The other advantage of repeat visits is that the consultant does not have much down time between visits.

The consultant's primary focus or "*bread and butter*" for the majority of his visits is in the technical on-farm area of production management or what he calls "*cows and grass*" (Table 10). This forms the core of his visit, but then around this core other issues will arise in the areas of strategic management, farm development and investment, financial management, human resource management, governance and environmental issues and so-on. The consultant manages his client-base around his core, but then identifies issues that he can address for the client at the next visit. This helps ensure repeat visits and a prolonged relationship with the client.

The consultant's focus has changed over the years. In his early days, his focus was mainly on technical issues. In those days farmers operated low input all-grass systems and profit was highly correlated with milksolids production per hectare. As such, the focus was on increasing production per hectare. Since then, the consultant has developed a more business oriented approach in terms of the financial performance of dairy farm businesses. He has also specialised in strategic management, business structures, governance and in particular equity partnerships. With the increase in farm size, he has also moved into human resource management as his clients have expanded and employed staff. In more recent years he has moved into the environment area as water quality has emerged as an important area for his clients. The consultant also pointed out that a key issue for a consultant is to determine what areas one is competent to give advice in and which areas they are not. Once an issue faced by a client moves out of the consultant's area of expertise, he will then refer them to the appropriate person who has the expertise to help the client. For example, he may refer them to a lawyer, a banker or an engineer. He stated that "*you've got to know where your knowledge stops and when to refer it to someone else*". This is critical for a consultant because it can create major problems and impact on their reputation.

4.2.1 The business of consultancy

The consultant thinks of two businesses, his own personal business and that of the consultancy firm he works for. When he first started there were 100 practicing consultants in the firm, but now the business is down to six consultants. The firm provides a car, covers the consultant's administration and typing, and pays him a salary. In terms of bad debts, the firm looks after that aspect of the business. The consultant works from home, so he does not have an office. He noted that if he had wanted to make more money, he should have gone out on his own. The six consultants that remain in the firm are not focused on money, when compared to those that left.

The consultant pointed out that his repeat visit strategy allows him to become efficient. With repeat visits, his letters are similar, he knows the farms well, he does not have to find out a lot of new information at each visit and he can turn up with minimal preparation. As such, a repeat visit strategy minimises the consultant's time cost per visit. The consultant does not charge a high hourly rate, and as such, he has to turnover a high number of visits during a week to make a good return. The repeat visit strategy allows him to do this. He also uses a Dictaphone to minimise his time input. He uses this on the drive home to set out the content of his report and this is then placed on the cloud where a secretary from his firm picks it up types up the report. This process minimises the consultant's down time. He pointed out that the higher charge out rates for consultants are around $180/hour or $750/half day.

In terms of chargeable hours, the consultant would charge for six hours per day plus additional hours for evening work where he writes up reports. He would do this five days a week, but allows half a day a month to go to meetings, DairyNZ workshops and so-on. On average he estimates that his chargeable hours would be about 1800 hours per annum. Normally the consultant undertakes two visits per day, five days per week and then he would spend time editing the reports post-visit.

4.2.2 A Consultant's attitude to problem ownership

Gray *et al*. (1999a,b) argued that the problem domain in which a consultant operates is complicated because they are the *problem solver*, but not the *problem owner*. The consultant is only the secondary and not the primary decision maker (Yates, 2001). As such, the consultant lacks key knowledge about the nature of the problem, the farm business and the client's goals and objectives. They argued that to access this information, the consultant has to develop rapport with the client to gain his trust and confidence. The other problem with the separation between problem owner and problem solver is in the area of *responsibility* (Gray *et al*., 1999b). Because the client is the problem owner, he is responsible for the decision and for the implementation of the decision, not the consultant (Gray *et al*., 1999b). The consultant in this study has a "*philosophy*" around the concept of "*responsibility*" and "*problem ownership*" that underpins his consultancy process that "*it is their business and it is their choice*". He believes that it is his role to provide advice that is in the client's best interests, a point made by consultants in other studies (Gray *et al*., 1999a,b), particularly in relation to personal integrity (Williams *et al*., 1997a,b). Williams *et al*. (1997a,b) reported that personal integrity was an important element of trust between a farmer and a consultant. However, the consultant strongly believes that his clients do not have to accept that advice. As such, the consultant recognises the separation between problem owner and problem solver that exists in his relationship with a client. He believes that this is critical when operating in a client-consultant relationship. He does however have an expectation that the client will listen to his arguments around a potential change before making a decision. The consultant also explains to the client that he will continue to raise issues that the client is not interested in because he believes such changes are in the best interests of the client. He recognises that the reason a client does not accept his advice could be because he has not clearly identified their goals and objectives. To do this he realises that he needs to develop a high level of rapport with the client and that this can take time. Several authors (Gray *et al*. 1999b; Williams *et al*., 1997a,b) have identified the importance of rapport in accessing sensitive information from a client.

4.2.3 The attributes of a consultant

The consultant stated that "our game is personality" and to be a good consultant he believes that one has to have the right personality. He also stressed the importance of good social or interpersonal communication skills, a point reported in a number of other studies (Williams *et al*., 1997a,b; Kemp *et al*., 2000). He stated that a consultant has to enjoy working with people. This is similar to Williams *et al*. (1997a,b) finding, that an important element of rapport between a consultant and a client was affinity. He stated that a consultant needs to be happy and positive because people like to engage with individuals with these traits. As such, the consultant ensures that on visits he comes across as happy and positive even if he has had a bad week. He stated that people like individuals that can make them "feel better". He also stated that having a sense of humour is useful for a consultant. Little has been written about the personality of consultants, but some studies have stressed the importance of interpersonal communication skills and the role of humour in building rapport (e.g. Williams *et al*., 1997a,b). The consultant believes that often consultancy firms recruit novice consultants who have the wrong personality for consultancy. This may be an area for future research. The study has highlighted that a consultant has to be good at networking, both with farmers, scientists and rural professionals. Again, there is little mention of this in the literature.

The consultant also believes that successful consultants need a personality that allows them to work with a range of clients. This allows them to access a broader client base. He believes that there are different types of consultants in New Zealand who have different styles of consultancy and play different roles. The consultant's

style is reasonably "laid back" and his focus is on developing a dialogue with the client around the problem. He stated that other consultants may have a more challenging style that is preferred by some clients. The consultant stated that he can adopt this style and play this role, but because it is not his natural style, it is more difficult and requires more energy. This suggests that the consultant classifies a client on the style of consultancy he prefers and then tailors his own style to meet that client's requirements. Little has been written about this in the farm management consultancy literature. Kubr (1996) identified the range of roles a corporate consultant could play and highlighted the level of a consultant's activity in the problem solving process (Figure 12). This ranged from an advocate and technical expert at one end of the continuum where the consultant plays a dominant role through to a process specialist and reflector at the other end of the continuum who provides limited input into the problem solving process.

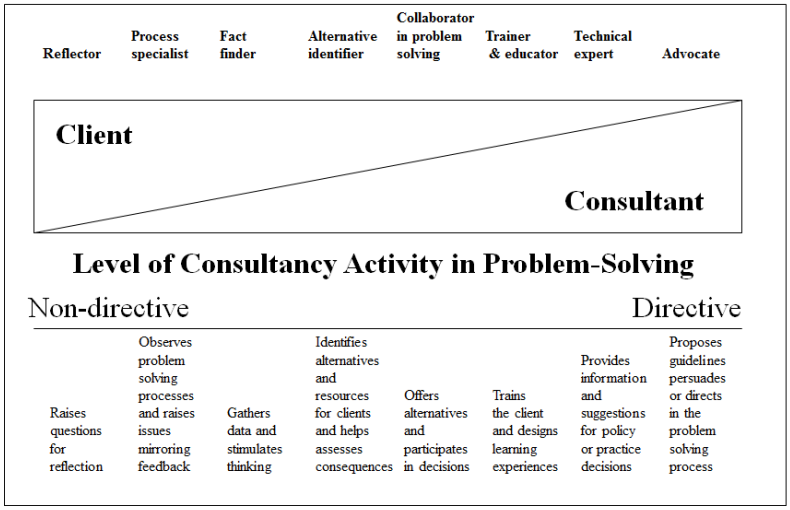


Figure 12 The roles a management consultant can play (Source: Kubr, 1996)

On a similar note, Nikolova *et al*. (2009) in the management consultancy literature identified three theoretical models that have been used to describe the client-consultant interaction: 1) the expert model, 2) the critical model and the social learning model (Table 11). The expert model is based on the assumption that "professional action consists of solving concrete client problems with the help of scientific theories and techniques" (Nikolova *et al*., 2009, p. 290). The consultant is the expert and possesses an interpretive monopoly in their respective knowledge and practice areas. This expertise allows the consultant to correctly determine the client's needs and develop effective problem solutions. The knowledge of the client is viewed as superior to that of the client and as such they occupy positions of relative power. The role of the client is reduced to information supplier during the diagnostic phase and they are not involved in the creative aspects of the problem solving process (Nikolova *et al*., 2009). The consultant's role is to adapt their abstract, general knowledge to the specific client situation to generate an adequate problem solution for the client (Nikolova *et al*., 2009).

Table 11 The roles played by a management consultant (Source: Nikolova *et al*., 2009)

	The expert model	**The critical model**	**The social learning model**
The consultant's role	Expert Responsible for diagnosis and problem solving	Impression manager Storyteller and creator of myths	Coach Facilitator of diagnosis and problem solving
The client's role	Provider of information Implementer	Audience, passive actor	Coach Problem solver Implementer
Power relation	Consultant's abstract knowledge superior to client's specific knowledge Consultant is the dominant actor	Consultant's rhetorical and argumentation skills are superior Consultant is the dominant actor	Consultant and client's knowledge and contributions equally important Balanced relationship

The critical model (Table 11) takes an alternative view to the interpretive monopoly of experts (Nikolova *et al*., 2009). Proponents of this view argue that "knowledge is a socially constructed phenomenon dependent on social recognition and legitimacy rather than on scientific objectivity" (Nikolova *et al*., 2009, p. 290). Professional knowledge is not substantiated knowledge but rather a specific language used by managers and management consultants (Nikolova *et al*., 2009). It is used to represent mutually acceptable ways of knowing and defining and talking about managers, management and organisations. It is also ambiguous, metaphorical and context-dependent. Proponents of this approach argue that in order to impress their clients and obtain their business, consultants rely on a high degree of rhetoric, images, metaphors, and humour (Nikolova *et al*., 2009). Consulting firms are "systems of persuasion that communicate with clients via a series of success narratives that act as a substitute for the consulting companies' ambiguous and vague knowledge base" (Nikolova *et al*., 2009, p. 290). In this model, clients are represented as passive actors who are focused on managing their own insecurities and fears (Nikolova *et al*., 2009).

In contrast to the other two models, the social learning model (Table 11) emphasises that the clients share centre stage with the consultant and are active players in the diagnosis and problem solving processes (Nikolova *et al*., 2009). Proponents of this approach argue that clients possess valuable knowledge (experiential and tacit in the case of farmers (Tsouvalis et al., 2000; Riley, 2008)) which need to be incorporated into the problem solution (Nikolova *et al*., 2009, p. 290.) This point was also made by the consultant in the study. In this model, a successful client-consultant interaction requires that the client and consultant jointly diagnose the client's problems and develop solutions to these (Nikolova *et al*., 2009). In this situation, neither party dominates the relationship, in contrast to the expert model where the power resides with the consultant (Nikolova *et al*., 2009). In this model it is argued that the client and consultant often speak different languages and have difficulty communicating with each other (Nikolova *et al*., 2009). An important aspect of the consultancy process is the development of a common language. As such, the two parties must make their interpretations of the situation clear to each other. To do this, they need to develop a common set of assumptions and some common language (Nikolova *et al*., 2009, p. 290). Nikolova *et al*. (2009, p. 290) stated that "In this process of reflection in action or dialogue, clients and consultants share authority and control over the negotiation of meaning.

The consultant stressed that a key attribute of a good consultant is the ability to work with a range of people. He noted that some consultants work with a narrow range of clients, but he prefers to work with a broader range. Some clients like consultants who are blunt almost to the point of rudeness. The consultant can play this style, but it is not his natural style and he finds it more difficult to take on this role, "it requires more energy". However, he can work with a range of farmers from those that are soft spoken and not pushy through to the other extreme. Little has been written about this in the literature.

The consultant stressed that a novice consultant has to be very good analytically (Sternberg, 1997.) They need to be able to analyse the impact of a change and identify the key drivers of systems performance. Consultants must also have a holistic understanding of farming systems. The consultant believes that if an individual lacks analytical skills and an ability to think systemically, then consultancy is probably not the job for them. Consultants also have to be able to provide practical advice and also know when they need to bring in outside expertise because they do not have the skills and knowledge to deal with a particular problem. Various studies have talked about the analysis a consultant must undertake (e.g. Rogers *et al*., 1996a,b; Gray *et al*., 1997a,b), but few have mentioned the skills they need in relation to analysis or systemic thinking. Similarly, little has been reported on the need to determine when the requirements of a client fall outside the consultant's skill set.

4.3 The consultancy process

Previous studies have reported that the consultancy process can be usefully separated into a physical process that describes the phases of a consultancy visit and a problem solving process that is used by the consultant to diagnose and solve problems faced by the client (Rogers *et al*., 1996a,b; Gray *et al*., 1999a,b, 2000; Bruce 2013). This study has identified one further process that the consultant undertakes and that is the recruitment of new clients. Other studies have focused on how an expert consultant either builds rapport (Williams *et al*., 1997a,b; Kemp *et al*., 2000) with a new client or diagnoses and solves problems for a new client (Rogers *et al*., 1996a,b; Gray *et al*., 1999a,b, 2000; Bruce 2013). However, the recruitment of a new client has been taken as a given in these studies and little has been reported on how they are recruited. This is an important area, particularly for a novice consultant who is seeking to expand his client base. The following sections will compare the consultant's client recruitment process, the physical phases of his consultancy visit and his problem solving process with the literature.

4.3.1 The recruitment of a new client and securing a first visit – the role of social capital

A critical element of consultancy is developing a client base and a key aspect of this is recruiting new clients. Social capital (Coleman, 1988; Putnam, 2000; Pretty and Smith, 2003) plays an important role in client recruitment for the consultant. The client uses three important networks to access new clients. First, he actively builds networks with farmers who are not clients with the aim of capturing some of these farmers as new clients. Second he relies on his network of existing farmer clients to provide referrals as a source of new clients. Finally, he also uses his network of other rural professionals to provide additional referrals that are a further source of new clients. Obtaining a referral from the latter two networks is dependent upon his reputation. The consultant highlighted that a novice consultant will not have a professional reputation in the district and as such, he would have to rely on the first approach. Kemp *et al*. (2000) reported that the "expert" farm management consultant in their study was invited to farms because of his reputation which had developed over many years. The social capital literature (Coleman, 1988; Putnam, 2000; Pretty and Smith, 2003; Adler and Kwon, 2002; Hall and Pretty, 2008a,b) argues that positive social capital can provide individuals with access to information, knowledge and resources. Other studies have shown that social capital is important for accessing information and knowledge both from a farmer (Fisher 2013), and an advisor perspective (Klerkx and Proctor, 2013). Klerkx and Proctor (2013) reported that advisors (veterinarians, applied ecologist land agent/surveyors) referred clients to other advisors from a different profession to assist their clients as was reported in this study.

The process used by the consultant to recruit new clients that is of most relevance to a novice consultant is where he builds a network of farmers who are not clients to secure some of these as new clients. This is because a novice consultant has yet to develop a reputation which he can then use to attract potential clients. The consultant stressed that "cold calling" on farmers was not an effective means of gaining new clients. Rather, he prefers to obtain what he referred to as a "warm visit", which is one where a potential client invites him out to his farm. The consultant believes that the probability of him securing a new client is 70 – 80% if he is invited out to a property. The consultant used his network of farmers who were not clients to secure an invitation to visit their farms. This is an example of the consultant using social capital (Coleman, 1988; Putnam, 2000; Pretty and Smith, 2003; Scholz, 2003) to gain access to clients. Other studies have described how social capital can be used to gain access resources, information and knowledge (Adler and Kwon, 2002; Hall and Pretty, 2008a,b; Fisher, 2012, 2013; Klerkx and Proctor, 2013), and Klerkx and Proctor have identified that rural advisors in one profession may refer their clients to a rural advisor in another profession if the client requires their expertise. However, little has been reported in the literature about social capital being used by farm management consultants to gain access to clients. This is a form of "bridging social capital", which relates to the "capacity of groups to make links with others that may have different views, particularly across communities" (Pretty and Smith, 2003, p. 633). This in contrast to bonding social capital which represents the "links between people with similar outlooks and objectives" (e.g. a group of local farmers or a group of local rural professionals) (Pretty and Smith, 2003, p. 633) and linking capital which represents hierarchical ties between people with different levels of wealth, power or influence (e.g. the consultant and a scientist or government official) (Scholz, 2003). A key finding from this study is that the consultant actively sets out to build bridging social capital with local farmers to expand his client base. This is an important area for a novice consultant to be aware of and to develop.

The consultant used a number of techniques to build bridging capital with local farmers. First, he obtained access to DairyNZ discussion groups through a local DairyNZ consulting officer. This gave him access to 10 – 15 discussion groups of 10 – 12 dairy farmers, a total of around 100 – 180 farmers. Second, he attended a range of activities that local dairy farmers attended. This included: dairy company seminars and workshops, conferences that targeted dairy farmers, farmer and sharemilkers of the year field days and dinners and field days that were run by DairyNZ or other organisations for dairy farmers. When meeting farmers, the consultant would take a "soft sell" approach. He has found that a "hard sell" approach is not likely to work with farmers. The consultant also identified that it may take several months to recruit a new client. He believes that consultancy is a "personal game" and that a key issue is compatibility between the consultant and the client. The consultant stressed the importance of social skills in his role as a consultant. This has been highlighted in several studies (e.g. Williams *et al*., 1997a,b; Gray *et al*., 1999a,b, 2000; Kemp *et al*., 2000) where they reported the importance of interpersonal communication skills in the development of rapport between a consultant and a client and the importance of this for effective problem solving. However, these studies did not mention the importance of rapport building in relation to the building of a farmer network or client recruitment pre-visit. Other studies have reported the importance of rural advisors building bridging social capital, but from the perspective of improving information and knowledge exchange with other rural professionals (e.g. Klerkx and Proctor, 2013).

To build rapport with a potential client, the consultant talks to local farmers at the meetings he attends. This gives the farmer the chance to assess the consultant in terms of compatibility and also in terms of their ability.

In a study (Williams *et al*., 1997a,b) of an expert consultant, a key element of rapport, affinity between the consultant and client was identified and this is in essence what the consultant in this study refers to as "compatibility". To increase the likelihood of securing a client during these interactions with a farmer, the consultant would provide them with "snippets" of advice that demonstrate his knowledge and experience. The consultant pointed out that one of the problems for a novice consultant is that they lack experience. During these conversations, and also if he is attending farmer meetings or a discussion group, the consultant will stress the areas he is knowledgeable in to enhance his reputation in the eyes of the farmer. He will also avoid commenting on areas where he lacks knowledge. He stated that it was important for a consultant to admit when they did not know something. However, he stressed that a consultant must be definite about what they do know. Williams *et al*. (1997a,b) also stressed the importance of technical competence in developing trust with farmer clients. The consultant stressed that any suggestions he makes to a farmer during an interaction or at a farmer meeting must be **practical**. He believes that the most simple means by which a consultant could lose credibility with farmers is to suggest something that is not practical. The "**how to**" knowledge (Regoczei and Hirst, 1992) about practice is critical for a practicing consultant. Love (1996) highlighted three areas of technical competence that were important in building trust with farmers and these were: industry knowledge, an ability to solve problems and an appreciation of the practical aspects of farming.

Often, after an interaction with a local farmer, the consultant will ring them in the evening and continue the discussion. He would not raise the issue of a visit because of his "soft sell" approach. It may take the consultant several months to secure a visit. This may happen during an interaction at a farmer meeting or the farmer may ring the consultant and request that he visit his property. The consultant may also use this approach to target specific farmers who he would like as a client. These tend to be farmers who operate larger operations (multiple farms). Little has been written about this in the literature.

The consultant is using his interpersonal communication skills to build rapport (Williams *et al*., 1997a,b; Kemp *et al*., 2000) with a potential client. This builds bridging social capital (Fisher, 2012b) and a key element in building this is that the consultant demonstrates that he has knowledge and expertise. Similarly, Fisher (2012a, p. 195) reported that "Farmers who do not perceive a contact to be knowledgeable or trustworthy, will not seek their advice". Knowledge and expertise are important in developing trust and credibility and are therefore essential in building social capital (Peters *et al*., 1997). In line with this, Williams *et al.* (1997a,b) reported that an important component of the trust that a consultant develops with a client is related to their technical competence and technical competence is important for building credibility.

4.3.2 The physical consultancy process

As stated earlier, previous studies (Rogers *et al*., 1996a,b; Gray *et al*., 1999a,b) have separated the consultancy process into a physical process and a problem solving process. This section describes the physical process used by the consultant. Other studies (Rogers *et al*., 1996a,b; Gray *et al*., 1999a,b) have separated the consultancy visit into three phases (pre-visit, visit and post-visit) and nine steps: first contact, pre-visit analysis, observation of area, ice-breaking, preliminary discussion, farm inspection, problem resolution, reporting and follow-up visit. Variations around this model have been reported. For example, Bruce (2013) in a study of the process used by an expert consultant to diagnose and solve an enterprise mix problem on a sheep and beef farm reported that the consultant undertook a six phase process involving additional visits and analysis phases. The consultant in this study uses a process similar to that reported by Rogers *et al*. (1996a,b) and Gray *et al*. (1999a,b). However, before undertaking a consultancy visit to a new client, this consultant undertakes a non-fee charging "engagement visit" and the sole purpose of this visit is to secure the potential client. No mention of an engagement visit has been reported in the literature. This is described in the next section.

Other studies of the consultancy process in the management consultancy area have used different ways of describing the phases of a consultancy visit. Rogers *et al.* (1996b) highlighted the work of Kubr in the management consultancy field. Kubr (1986) proposed a model of the consultancy process that consisted of five steps, *entry, diagnosis, action planning, implementation* and *termination*. The *entry* phase of the consultancy process involves the development of a helpful relationship between the two parties, the determination of the client's expectations and preliminary problem identification. In the process derived from this study, the entire engagement visit process and the pre-visit phase and early part of the farm visit during the first consultancy visit constitute the *entry* phase. However, Rogers *et al*. (1996b) argued that their consultancy model placed greater emphasis on rapport building than Kubr's (1986) model. They argued that this may be because his model describes the process used by consultants who work for large corporates rather than small family businesses. They stated that in small family businesses, family and business goals are inextricably entwined and that the development of rapport is essential for the articulation of these more sensitive personal goals.

The *diagnosis* phase of Kubr's (1986) model involves the process of identifying the problem and examining the information pertaining to the problem. This is similar to the problem identification phase of the problem solving framework (Rogers *et al.*, 1996b). The *action planning* phase involves the development of alternatives, evaluation of alternatives, choice of an alternative by the client and the development of a plan for the implementation of the solution as specified in Rogers *et al*. (1996b model). Although the *implementation* phase is included in both Kubr's (1986) and Rogers *et al*.'s (1996b) models of the consultancy process, implementation is completed by the client in Rogers *et al*.'s (1996b) model, but the consultant may assist with the planning and control of this phase. *Termination* involves the evaluation of the *action plan*, termination of the process or alternatively the formation of plans for continuation. In this study, termination is a misnomer, because in most instances the consultant attempts to ensure follow-up visits with the client. As such, the consultant in this study is most interested in the formation of plans for the continuation of the consultancy relationship rather than termination *per se*. Kubr's (1986) model combines elements of Roger *et al.*'s (1996b) physical model and their problem solving framework. There may be some advantages in standardising the models to provide a more useful framework for studying consultancy.

In contrast to Rogers *et al.'s* (1996b) and Kubr's (1986) models of the consultancy phases, Nikolova *et al.* (2009) developed a four phase model (Figure 13). The first phase was "acquiring projects" and is similar to the entry phase described by Kubr (1986). Nikolova *et al.* (2009) reported the practices that management consultant in their study used to acquire a project with a client. These practices depended upon the nature of the project they were undertaking for a client. If the outcome from a project was a tangible product e.g. the design of an innovative bridge, then these could be shown to the client. Problems occurred with intangible projects such as those associated with helping a client develop a new strategy as these could not be "shown" to the client. In these cases, the references of the consultants, their appearance and rhetorical persuasion skills were found to be important for acquiring a project and hence client. The status and/or professional reputation were important for older consultants in terms of acquiring a project. This was also important for the farm management in this study. However, Nikolova *et al.* (2009) reported that for younger consultants that did not have the status and reputation of their older colleagues, they had to rely on their appearance, rhetorical skills and their ability to tell success stories. The farm management consultant in this study did use other practices like this to engage clients if not relying on his reputation to obtain a referral.

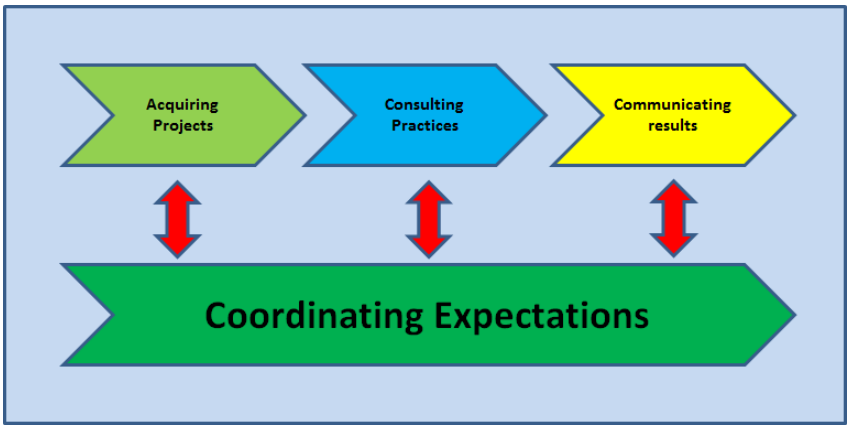


Figure 13 Major phases of the consultancy visit (Source: Nikolova *et al*., 2009)

The next phase of Nikolova *et al*.'s (2009) consultancy process was termed "consulting practices" (Figure 13). This occurred once the project and the client, were acquired. However, they found that the procedures used by consultants in this phase depended upon whether they were conducting a routine consultancy or an innovative consultancy. Where a consultant undertook a routine consultancy, Nikolova *et al*. (2009) referred to this as "exploitive consulting". This process was based on a largely standardised and sequential problem solving process that included: 1) problem diagnosis, 2) generating alternatives, 3) evaluating the alternatives, 4) and implementation. This is similar to many of the steps in the problem solving process used by the farm management consultant in this study and in other studies (Rogers *et al*. 1996b, Gray *et al*., 1999a,b, 2000). It is also similar to Kubr's (1986) phases of *diagnosis*, *action planning* and *implementation*. As with the farm management consultant in this study, the consultants in Nikolova *et al*.'s (2009) study put considerable effort into information collection and gaining the clients affirmation of the assumptions and the data underlying the models they were using. They spent a lot of time discussing the assumptions and suggested solution to ensure the client accepted the solution, something also undertaken by the farm management consultant in this study.

In contrast to routine consultancy projects, the management consultants in Nikolova *et al*.'s (2009) study were also involved in innovative projects and for these, they used what Nikolova *et al*. (2009) referred to as an "explorative consulting" procedure that was quite different from their normal "exploitive consulting" procedure. The procedures are different in explorative consulting because the consultant does not have the appropriate substantive and methodological knowledge to help them diagnose the problem or develop options for its resolution. Nikolova *et al*. (2009) found that such knowledge was generated through a period of intense interaction with the client. During this process they stated that it was important for the consultant to recognise that their "typical expert procedure" was not transferable to an innovative problem. As such, the consultants had to manage a high-involvement, learning-intensive problem solving process which required intensive interaction with the client. This is another role for a consultant (Margarison 1988, Kubr, 1997) who has to operate in an open-ended environment where the client has to understand the process by which the solution is reached, and be directly involved in managing the developing situation. Nikolova *et al*. (2009) found that in such ambiguous problem solving situations, the degree of rapport that a consultant had with a client became increasingly important because it gives them faith in the consultant's ability to solve the problem. This area was not discussed with the farm management consultant in this study, but with a rapidly changing world, where consultants are increasingly likely to face innovative problems, this could be an important area of future research.

The third phase of Nikolova *et al*.'s (2009) consultancy process is "communicating results" (Figure 13). Nikolova *et al*. (2009, p. 293) argue that communication is the "life blood" of any consultancy engagement. A key task of consultancy is to "shape client interpretations of the consultancy results" (Nikolova *et al*., 2009, p. 293). Nikolova *et al*. (2009, p. 293) found that a consultants appearance, rhetorical skills and "argumentative brilliance" were particularly important in conveying their diagnosis and solutions for problem resolution. The importance of interpersonal communication skills in farm management consultancy was also highlighted in this and other studies (Williams *et al.,* 1997a,b: Kemp *et al*., 2000). The final phase of Nikolova *et al*.'s (2009) consultancy process is "coordinating expectations" (Figure 13). During this phase they found that the success and the mutual satisfaction with the project were dependent on the coordination of the client's and the consultant's process and outcome expectations. Problems occurred if these expectations were not well coordinated. "Process expectations" were about how the client and the consultant were supposed to interact with one another (Nikolova *et al*., 2009). Little mention of this was made in this study with a farm management consultant. In contrast, "outcome expectations" were about the client's and the consultant's expectations of the outcome from the project. The farm management consultant in this study stressed that it was important that the client's expectations of the solutions the consultant proposed were realistic and he worked to ensure this was the case. Failure to do this resulted in problems for the consultant which could result in his termination. Nikolova *et al*.'s (2009) also reported that coordination of expectations was important in influencing the project outcome, but also the likelihood of subsequent projects. The following section, describes the engagement visit that was undertaken by the farm management consultant and compares the findings to the literature.

4.3.2.1 The engagement visit

Previous studies (Rogers *et al*., 1996a,b; Gray *et al*., 1999a,b; Williams *et al*., 1997a,b; Kemp *et al*., 2000) of New Zealand consultants have reported that a consultant will visit a new client after an initial contact has been made, normally through a telephone call. An important finding from this study is that although the consultant may access a new client through a referral over the telephone, he normally undertakes what he refers to as an engagement visit to secure a relationship with a new client. Unlike the "first visits" to a client reported in the other studies (Rogers *et al*., 1996a,b; Gray *et al*., 1999a,b; Williams *et al*., 1997a,b; Kemp *et al*., 2000) where the focus is problem solving, the consultant in this study undertakes a first visit where the focus is to engage and secure a new client. There is no fee associated with an engagement visit. The consultant undertakes a problem solving visit after the engagement visit if he secures the client.

4.3.2.1.1 Structure of the engagement visit

The structure of the consultant's engagement visit is similar to the structure of other consultancy visits reported in the literature (Rogers *et al*., 1996a,b; Gray *et al*., 1999a,b; Williams *et al*., 1997a,b; Kemp *et al*., 2000). It begins with first contact and then the consultant undertakes some pre-visit preparation, but this is minimal compared to that reported in other studies (Rogers *et al*., 1996a,b; Gray *et al*., 1999a,b; Williams *et al*., 1997a,b). There is the drive to the farm, however, the consultant does not actively observe the local area as reported in other studies (Rogers *et al*., 1996a,b; Gray *et al*., 1999a,b; Williams *et al*., 1997a,b; Kemp *et al*., 2000). This because the consultant is very familiar with what is happening in an area because of his other visits. Upon arrival at the farm, there is a period of ice-breaking, followed by a preliminary discussion, normally around the kitchen table and then a farm inspection. Post farm inspection there is a period of discussion, but this is not about problem resolution as reported in the other studies (Rogers *et al*., 1996a,b;

Gray *et al*., 1999a,b; Williams *et al*., 1997a,b; Kemp *et al*., 2000), rather it is about the services the consultant can offer the potential client. Because the consultant has not secured the client, he does not write a report post-visit as has been reported in other studies for a first visit to a new client. Similarly, a follow-up visit as reported in the other studies (Rogers *et al*., 1996a,b; Gray *et al*., 1999a,b; Williams *et al*., 1997a,b; Kemp *et al*., 2000)will only occur if the potential client decides to take on the services of the consultant. The following sections will discuss the phases of the engagement visit.

4.3.2.1.2 First contact

The consultant normally receives a phone call from a potential client and is invited out to their farm. The consultant secures an invitation through two mechanisms. The first is through building social capital (Fisher, 2012, 2013) with a network of farmers who are not currently his clients as previously discussed. The second is through his existing networks of either farmer clients or rural professionals. For example, he may obtain a referral from one of his existing clients who suggests that a peer is interested in the services of the consultant. Alternatively, a rural professional (e.g. banker, veterinarian) may refer the farmer to the consultant. The referrals rely on the consultant's reputation in the area, a point made in other studies (Williams *et al*., 1997a,b). As such, through building social capital through a range of networks in the rural community, the consultant obtains access to new clients. Although other studies (Williams *et al*., 1997a,b; Kemp *et al*., 2000) have stressed the importance of interpersonal communication and rapport building in relation to problem solving by a consultant, they have not highlighted the importance of this process in building social capital to access resources (Fisher, 2012, 2013), namely new clients.

During the phone call, the consultant organised a date and time for the visit and finds out the farmer's location. However, he does not collect information about the client and his farm or ask about the nature of the problem confronting the client as reported in other studies (Rogers *et al*., 1996a,b; Gray *et al*., 1999a,b; Williams *et al*., 1997a,b; Kemp *et al*., 2000). The consultant will obtain this information during the visit minimising his time on the telephone. He also believes that the potential client does not want to spend a lot of time on the phone. In a study of six farm management consultants, Gray *et al.* (1999b) reported that some consultants collected a lot of information over the phone, but others like the consultant in this study, collected minimal information.

4.3.2.1.3 Pre-visit preparation and analysis

The consultant in this study undertakes minimal pre-visit preparation or analysis. Gray *et al*. (1999b) reported that this varies across consultant with some undertaking minimal preparation and analysis and others undertaking a considerable amount (e.g. a property valuation and analysis of 3 – 5 years of accounts). For the consultant in this study, the lack of preparation is partly because of the nature of the visit, the focus is on relationship building and securing a new client, not problem solving. However, it is partly the way this consultant operates and partly because of his expertise in the domain. The consultant does not tend to do a lot of preparation at the office before a visit to reduce his time input. He can do this because he has the experience and expertise to undertake a visit with minimal preparation. He noted that if he was a novice consultant he would do a lot more preparation. The other important point is that the consultant does most of his pre-visit preparation, not in the office, but in his car on the drive out to the farm, an area not reported on in other studies. He does this to utilise otherwise non-productive time during the drive to the farm (see next section).

4.3.2.1.4 Drive to the farm and observation of the district

On the drive to the farm, the consultant is not concerned about making observations of the district and the farms in the area because he is in the district most days. In contrast, other studies (Rogers *et al*., 1996b; Gray *et al.*, 1999a,b, 2000) have reported that the consultants would observe the area and the surrounding farms as they drove to the client's property. The consultant said that this would be the case if he was visiting a potential client in a district he did not normally visit. The main activity the consultant undertook during the drive to the farm was to plan the engagement visit (one of the key activities in his script (Schank and Abelson, 1977, Endsley, 1988, Beach 1997.)) Other studies have discussed pre-visit preparation (Rogers *et al*., 1996b; Gray *et al.*, 1999a,b,), but not planning *per se*. The planning is minimal, but the consultant reflects on the structure and what he will cover during the visit, and the focus of the visit. He will consider how he will open the conversation upon arrival and possible topics for the ice-breaking conversation. During the visit, the consultant will normally expect a period of ice-breaking conversation upon arrival, a preliminary discussion, normally around the kitchen table, then a farm inspection followed by a discussion about the services the consultant can offer the potential client.

On the drive to the farm, the consultant reviews his goals for the visit. The consultant's primary goal for the engagement visit is to capture a new client. To achieve this, he must ensure dialogue is occurring between

himself and the potential client. This is critical if he is to build a relationship with the farmer and capture him as client. The consultant also has a number of other goals that he wants to occur during the visit. He wants the potential client to be relaxed in his company and he wants him to enjoy the visit. He also wants the potential client to decide that they are compatible. Other studies (Williams *et al*., 1997a,b; Kemp *et al*., 2000) have identified that consultants want to achieve a relaxed working relationship with a client, but this has been in relation to information gathering rather than client recruitment. These studies have also identified the importance of developing affinity between a consultant and a client. Another goal of the consultant is to ensure the potential client understands the range of services he can provide and to provide evidence of how he can add value to the business. Little has been written about the planning process consultants go through prior to a visit. This may be a useful area for further research in relation to helping novice consultants.

4.3.2.1.5 Arrival at the farm and ice-breaking conversation

Upon arrival at the farm, the consultant meets the potential client or clients. This may be in the kitchen, at the cow shed or out on the farm depending upon the farmer's preference. The consultant made a critical point, that "who he meets depends on who holds the power in the relationship and what they decide". The "power broker" invites who they want to attend the meeting. It could be a husband and wife of a father and son. In some instances a wife is not interested in the business, but in others instances she will be heavily involved. The consultant also stressed that age often influences this with a more equal partnership occurring in younger couples. He also has a number of sole female clients, so does not go into a situation with any preconceived ideas about who will be involved in the decision making team and then adapts to the situation he finds at the meeting. He does identify what he calls the "power broker" and he has a "golden rule" that he avoids upsetting this person. Kemp *et al*. (2000) reported that the consultant in their study stressed the importance of avoiding behaviour that would cause the client to dislike him.

The consultant also does not involve people who do not want to be involved in the meeting as it wastes both their time and his time. In terms of power, the relationships between members of the decision making team can vary, some are equal and some are not. Little has been written about power in relation farm management consultancy. The consultant also highlighted reasons for differences in the power relationship. They may be due to differences in interests or it may be due to different roles within the farm family or business (e.g. primary care giver). These results differ from a study by Gray *et al*. (1999b) where they reported that the six consultants in their study will attempt to have both partners at the meeting.

As reported in the other studies (Rogers *et al*., 1996a,b; Gray *et al*., 1999a,b; Williams *et al*., 1997a,b), there is a period of ice-breaking conversation where the consultant is building rapport and putting the potential client at ease. The consultant will also use humour to relax the potential client, but he stressed that if one cannot do this naturally, avoid it. Williams *et al.* (1997a,b; Kemp *et al*., 2000) reported that humour was used by the consultant in her study to build rapport.

4.3.2.1.6 Preliminary discussion

After a period of ice-breaking conversation, the consultant moves on to collect general information about the farm. This is similar to the process reported in other studies (Rogers *et al*., 1996a,b; Gray *et al*., 1999a,b; Bruce, 2013) for a first visit. This information is used by the consultant to build a picture of the farm business as reported in other studies (Rogers *et al*., 1996a,b; Gray *et al*., 1999a,b; Bruce, 2013). The consultant stated that asking a farmer general questions about their farm business helps build rapport because they are comfortable answering these non-threatening questions, a point made by Williams *et al*. (1997a,b). The consultant avoids asking questions about sensitive topics such as the farmer's financial position at this stage of the visit. Other studies (Rogers *et al*., 1996a,b; Gray *et al*., 1999a,b) that have looked at a first visit, found that the majority, but not all of the consultants asked about a client's financial position in the latter part of the preliminary discussion. The consultant does however try to obtain information about the potential client's goals and objectives. He stresses that these can be difficult to identify and that he will not be able to identify all of the client's goals during the engagement visit. Other studies (Rogers *et al*., 1996a,b; Gray *et al*., 1999a,b) have identified that consultants will obtain information about the client's goals during this phase of a farm visit.

The consultant does do some preliminary analysis during the preliminary discussion using 5 – 6 key performance indicators to assess the potential client's performance. He also classifies the farm in terms of systems 1 – 5 on the basis of their use of supplementary feed. Other studies (Rogers *et al*., 1996a,b; Gray *et al*., 1999a,b) have identified that consultants may undertake some analysis during this phase of the visit and this may range from minimal analysis to a full accounts analysis. The consultant is also assessing how accurate the information is that is provided by the potential client, a point made in several studies (Rogers *et al*., 1996a,b; Gray *et al*., 1999a,b; Bruce, 2013). At this stage, the consultant also provides some information that he knows from experience, farmers like to hear. This would include how well they are performing (good, average, poor) relative to other farmers within the district. No mention was made of this in other studies.

Once a reasonable picture of the farm business has been developed, the consultant will ask the potential client what he wants from the consultant's involvement in the farm business. The consultant sets out the services he can provide to the client. Other consultants have tended to undertake this activity after the ice-breaking phase, but before the collection of information about the farm (Rogers *et al*., 1996a,b; Gray *et al*., 1999a,b).

4.3.2.1.7 Farm inspection

After the preliminary discussion, the consultant will undertake a farm inspection to observe the resources and discuss the management of the farm. Other studies (Rogers *et al*., 1996a,b; Gray *et al*., 1999a,b; Bruce, 2013) have reported a similar sequence of activities for a first visit to a new client. The consultant stressed that the farm inspection is important for building rapport with the potential client because they are more relaxed out on the farm, a point made by Williams *et al*. (1997a,b). During this phase of the visit, the consultant provides a sample of the sort of advice and knowledge that he can offer the potential client. This information is provided so that the potential client can make some assessment of the likely value the consultant might bring to the farm business. This process is not reported in other studies primarily because these studies are not reporting on an engagement visit, but rather a first visit where the client has already been secured.

4.3.2.1.8 Post-farm inspection discussion

After the farm inspection, the consultant has a discussion with the potential client. This may take place back at the house or cowshed or in the truck on the farm. A similar phase has been reported in other studies (Rogers *et al*., 1996a,b; Gray *et al.*, 1999a,b; Bruce, 2013), but associated with the first consultancy visit to a farm, not an engagement visit. During this phase of the visit, the consultant sets out what services he can provide the potential client, his fees and identifies what the potential client would like to gain from employing the services of the consultant. This has not been reported in other studies because those studies made no mention of an "engagement visit". During this phase of the visit, the client has two goals, first to secure a new client and second to identify the areas that they would like help with in terms of consultancy.

To secure the client, the consultant sets out the services he can provide to the potential client and also the expertise he can make available to the client through his industry networks. As such, he is not just selling his services, but he is also selling the potential client an entrée to valuable industry networks that he may not be able to access himself. This has not been previously mentioned in the literature.

The consultant also continues to build rapport with the client during this phase. For example, he sets out his strengths and weaknesses to the potential client. He deliberately sets out his weaknesses because he has found this form of disclosure is useful for building rapport. It demonstrates to the potential client that he has humility and that he does not know everything. Williams *et al.* (1997a,b) reported that disclosure was used by the consultant in her study to build rapport. The consultant minimises the impact of such disclosure by only mentioning his minor weaknesses and also pointing out to the potential client that he has access to experts in those areas which he is weak.

The consultant then sets out his fees and recommends that the potential client employ him for six to eight visits per year and no less than four. He argues that he can provide a high quality of advice if he is visiting a client at regular intervals throughout the year, that is, a multiple-visit package. His aim is to sell a value proposition around a series of visits throughout the year. The consultant argues that such a service would only cost the farmer 800 – 1000 kg MS/annum and that he would not have to improve the performance of the business much to recoup the cost. He also argues that regular visits allow the consultant to be more pro-active through regular monitoring and benchmarking and that this can motivate and focus a client. Little has been written about this in the literature.

The final phase of the visit is when the consultant identifies what the potential client wants out of the relationship. The consultant will ask this directly of the potential client. However, he does recognise that the potential client may not divulge all of the issues at this early stage and also that there may be some issues of which he is unaware. Similar findings have been reported in the literature (Rogers *et al*., 1996a,b; Gray *et al.*, 1999a,b), but in relation to the early phases of a first-up consultancy visit, not an engagement visit. After this the visit is terminated. Normally a potential client will talk to some of their peers before deciding to take on the services of the consultant. The consultant believes that most new clients take on his services because they are compatible and feel comfortable with the consultant. Compatibility is important when securing a new client. Little has been reported in the literature on this, although Williams *et al*. (1997a,b) did stress that consultants aimed to develop a relaxed and comfortable working relationship with a client. The consultant did stress that a consultant should not "try too hard" to secure a new client as this tended to put the farmer "offside". This is an important point for novice consultants, but one not covered in the literature.

4.3.2.2 The first consultancy visit

Normally, a potential client will contact the consultant a week after the engagement visit to engage his services. Previous studies (Rogers *et al*., 1996a,b; Gray *et al*., 1999a,b; Bruce, 2013) of expert consultants and their first visit to a new client did not report the use of an engagement visit to secure a client prior to the first consultancy visit. However, the structure of the consultants first consultancy visit is similar to that reported in other studies (Rogers *et al*., 1996a,b; Gray *et al*., 1999a,b; Bruce, 2013). This normally comprised contact by the new client, a period of pre-visit preparation, the drive to the farm, arrival at the farm including ice-breaking conversation that was then followed by a preliminary discussion, farm inspection and a problem resolution phase. After the visit was terminated, the consultant wrote up and then sent a report to the client (a reporting phase) and after this there would be a follow-up visit. The following sections will compare the phases of the consultant's visit to a new client with the literature.

4.3.2.2.1 Contact

As with other studies (Rogers *et al*., 1996a,b; Gray *et al*., 1999a,b; Bruce, 2013) a new client will contact the consultant over the telephone. The consultant obtains these new clients either through his engagement visit, or through a referral. A referral is normally obtained through the consultant's network of existing clients or through his network of rural professionals highlighting the role that reputation and social capital (Coleman, 1988; Putnam, 2000) play in client recruitment. Little has been written about the role of social capital in client recruitment, although other studies (Williams *et al*., 1997a,b; Kemp *et al*., 2000) have discussed the importance of reputation in developing rapport with a new client. The consultant obtains little information from the new client during contact. Other studies of expert farm management consultant reported that during this phase, the amount of information a consultant obtained ranged from minimal through to a wide range of information about the farm and farm family (Gray *et al*., 1999a,b). The consultant also made sure that he further developed rapport with the new client by being pleasant and positive on the telephone. Williams *et al*. (1997a,b) discussed how an expert consultant developed rapport with a client, but did not mention the process used during first contact. They did however mention the importance of manners and using praise to provide positive feedback to the client during the ice-breaking phase.

The main focus during this phase of the visit was to secure a date and time for the visit. The consultant stressed that it was critical to do this when the new client first made contact. The consultant also asks the new client what he would like to focus on during the visit. However, he does have a reasonable idea about this from his engagement visit. Little mention was made in other studies about this aspect during contact with a new client. Rather, it was mentioned as an important aspect during the preliminary discussion phase of the visit (Rogers *et al*., 1996a,b; Gray *et al*., 1999a,b).

4.3.2.2.2 Pre-visit preparation and analysis

After the phone call from the new client, the consultant does little in the way of pre-visit preparation and analysis at the office. Other studies (Gray *et al*., 1999b; Bruce, 2013) reported that the amount of pre-visit preparation varied between consultants. Some undertook limited preparation whilst others might analyse three years sets of accounts and obtain other information about the new client's farming system. Bruce (2013) reported that the amount of analysis the consultant in her study undertook pre-visit was minimal because he did not want to introduce bias into the visit, a point also made by one of the consultants in Gray *et al*.'s (1999b) study. The consultant might do some pre-visit preparation if the new client wanted him to look into an issue that required some research prior to the visit. This was not mentioned in the other consultancy studies, but the consultant in Bruce's (2013) study mentioned that if he was going into a new district, he would investigate the soils in the district using Landcare Research's S-map for soils and also NIWA's vistual climate website to obtain climate information.

For most visits to a new client, the consultant relies on his expertise and experience to minimise the need for pre-visit preparation and analysis. This allows him to make efficient use of time. The consultant may draw on his local knowledge about the new client and he may talk to other rural professionals about them, but this would normally only happen by chance, not by intent. Because the consultant is visiting 9 – 10 farms per week, much of the material from these visits is transferable to the visit to a new client, further improving efficiency. Little has been written about efficiency or use of time in the consultancy literature, but this is an important area when one is operating a commercial business. The consultant stated that a novice consultant would need more pre-visit preparation and a more formal process that included developing a plan for the visit. He also suggested that prior to the visit; they should make notes about the client and his farm and undertake a SWOT analysis of the business.

4.3.2.2.3 Drive to the farm and observation of the area

In contrast to consultants in other studies (Rogers *et al*., 1996a,b; Gray *et al*., 1999a,b), the consultant in this study does not collect information about the district on the drive out to a new client's farm. The reason for this is that the consultant drives through the district most days to visit local farms, so he is very aware of what is happening in his district. The consultant also stated that he knows what is happening in the district through his farmer and rural professional networks. This is an example of the consultant's social capital providing him with access to information that he can use in his consultancy business. Other authors have argued that social capital can provide access to information and knowledge (Fisher 2013), but little has been written about the role of social capital in relation to farm management consultancy. The consultant did admit that if he was visiting a new district, he would spend time observing the area. The consultant uses the drive out to the farm to plan the visit. He stated that the drive to and from a client's farm is "dead" or unproductive time, so he uses it in a productive manner. This further highlights that the consultant is aware that he must efficiently utilise the time he has available during his consultancy visit, a point not previously mentioned in the literature. This also explains why the consultant does little pre-visit preparation at the office, instead he utilises time that would otherwise be non-productive to prepare for the visit.

During the drive to the new client's farm, the consultant undertakes a planning process to develop a plan for the visit. Lippett and Lippett (1968) mention that the quality of decision making in advisory circumstances is highly dependent upon the conceptual framework used to organise a consultation. Previous studies on consultancy have focused on rapport building (Williams *et al*., 1997a,b; Kemp *et al*., 2000) or problem solving (Rogers *et al*., 1996a,b; Gray *et al*., 1999a,b; Bruce, 2013) rather than the planning, implementation and control of a farm visit. It may be that a "management perspective" as opposed to a problem solving perspective could provide new insights into the process of consultancy for training novices and as such, it may be a useful area for future research. The consultant stated that he would not undertake this level of planning for a repeat visit to an existing client.

4.3.2.2.4 Arrival at the farm and ice-breaking conversation

As reported in other studies (Rogers *et al*., 1996a,b; Gray *et al*., 1999a,b) upon arrival at the farm, the consultant greets the client and then undertakes a period of ice-breaking conversation to further build rapport with the client. The consultant stressed that this was important because at this stage he has yet to develop a high level of rapport with the new client. Other studies (Williams *et al*., 1997a,b; Gray *et al*., 1999a,b; Bruce 2013) have also stated that during the early phases of the visit to a new client, rapport is being established. As with the other studies (Rogers *et al*., 1996a,b; Gray *et al*., 1999a,b), the ice-breaking conversation normally occurs at the kitchen table over a cup of tea or coffee, but it may occur at the cow shed or out on the farm depending upon the client. Topics of conversation might include the weather, the season, the pay out, or current state of the farm. Other studies (Gray *et al*., 1999b; Kemp *et al*., 2000) have mentioned sport, pets, the house and garden, the family and local events.

4.3.2.2.5 Preliminary discussion

After the ice-breaking conversation was completed, the consultant refreshed his memory about the client's farming system by collecting the same information he had collected during the engagement visit. However, at this visit he writes field notes so that he has a record and can verify the information against what he was told during the engagement visit, another form of triangulation. In other studies (Gray *et al*., 1999a,b), consultants have collected information on the resources, livestock policies, production levels, farm family, their goals, roles and interests, and some aspects of the farm's financial situation (e.g. debt levels) after an initial period of ice-breaking study. However, these consultants did not undertake an engagement visit and were not collecting information that they had previously obtained. The consultant collects information about the resources, farming system, farm family and some financial information. If the consultant believes that further financial analysis is required, he will complete this after the visit. Other studies reported (Gray *et al*., 1999a,b) that consultants might undertake accounts analysis pre-visit, during the preliminary discussion phase, post-visit or not at all if, like the consultant in this study, it was not required. The consultant does not analyse the accounts on-farm because it would mean the client is sitting waiting for the analysis to be completed.

Once the consultant has collected sufficient information on the client, farm family, farming system and the financial situation, he will ask the client what areas he would like him to focus on during his visits. He stated that to undertake his job effectively, it is important that he understand what the client requires of him. He believes that this is one area a novice consultant should always ask about. This is because if he fails to deliver the services the client requires of him, the client will be disappointed and the relationship will be terminated. This activity is reported to occur during the preliminary discussion in other studies, but the timing varied between studies. Gray *et al*. (1999b), reported that it normally occurs after the ice-breaking conversation, but

before the consultant begins collecting information about the farm family and farming system. However, Bruce (2013) reported that it occurred after information was collected about the farm family and farming system.

After the consultant has identified the issues the client thinks are important in relation to their farm business, he sets out the roles he can play and the services he can provide to the client. These "roles" were not roles in the true sense of the word, but rather the areas of expertise the consultant could cover. The consultant can provide expert advice in a number of areas and he believes that it is important that the client understands this. The consultant has five key areas of expertise that he can provide when working for a client. First he can provide technical (production) advice to the client. This might include advice on how to improve milksolids production, fertiliser use or herd nutrition. Second, he provides advice on financial management. Normally he covers three areas: liquidity, profitability and solvency. Third, he provides advice on business strategy and governance. He may help a client with strategic planning, goal setting, business expansion or setting up a governance structure and process for a farm. Fourth, he will provide advice on human resource management or what he calls the people side of advice. Finally, he provides advice on environmental compliance. This is an area where his client's often lack knowledge. Little was mentioned about the areas of expertise a consultant provides advice on during a farm visit in the New Zealand consultancy literature. In contrast, Kubr (1996) identified a range of roles a corporate management consultant can play, based on the degree to which the consultant involved the client in the problem solving process. This ranged from a technical expert role where the consultant diagnoses the problem and provides the solution with little input from the client through to a life coach role where the consultant helps the client diagnose his own problems and derive suitable solutions. The consultant did not think about roles from this perspective.

Once the consultant has explained the areas where he can provide technical advice and the services he can provide, he sets out the issues he has identified from his preliminary analysis using his 4 – 6 key performance indicators. The consultant has technical (production) and financial indicators. However, the financial indicators are not used during the first visit, but calculated after the visit and used during the second consultancy visit to the property. The consultant then discusses the issues he has identified with the client to see if he agrees that these are important issues. Other studies (Gray *et al*., 199b; Bruce, 20013) have reported this stage, but not until the problem resolution phase of the consultancy visit. It appears that the consultant in this study tries to narrow down the possible issues confronting the client before going out on the farm inspection to reduce the amount of information he has to collect.

4.3.2.2.6 Farm inspection

During the farm inspection the consultant observes the resources (land, labour and capital) including the infra-structure (shed, water supply), herd and pastures. He is also observing and questioning the client about what he is doing in terms of his management of the production system. This information is used to continue building a picture of the farm family and the farming system. Similar activities have been reported by other studies (Gray *et al*., 1999b; Bruce 2013). The consultant spends most of the time listening to the client and observing the farm. The consultant provides limited advice, but rather he makes brief comments about the state of the farm e.g. pasture cover levels, cow condition and so-on. He may mix this up with some social conversation such as about the rugby. The consultant does not make sweeping recommendations at this stage, but waits until he has a full understanding of the farming system, a point made by the consultant in Bruce's (2013) study. However, Gray *et al*. (1999b) reported that some of the consultants in their study made recommendations for problems as they emerged during the farm inspection and others left this until the problem resolution phase.

4.3.2.2.7 Problem resolution

After the farm inspection, normally the consultant and client return to the house for a final discussion, a point reported in other studies (Rogers *et al*., 1996b; Gray *et al*., 1999a). The consultant then summarises key points about what he has seen during the farm inspection for **both** himself and the client. The consultant normally spends 5 – 10 minutes describing the client's production system and the performance levels that the system is achieving. This information will be placed in his first letter to the client and the consultant views this as his base data that describes the client's farming system prior to any interventions initiated through his advice. In effect, he is benchmarking the farm at a point in time prior to his involvement. The information will include effective area, cow numbers, total milksolids production, production per cow and production per hectare, stocking rate, feed inputs, number of heifers and so-on. This information does not cover everything about the farming system, but it is what the consultant calls his "steelwork" or his "framework" or the "farm system". Once the consultant has outlined the key elements of the production system to the client, he **verifies** that this information is correct. As such, the consultant's first activity post-farm inspection is to set out the current situation on the farm. He reiterated that this is an important task during this phase of the visit and that he does this on all visits. In contrast, other studies (Rogers *et al*., 1996b; Gray *et al*., 1999a) found that consultants highlighted the strengths and weaknesses of the client and farm in the early stages of the

problem resolution phase. Some consultants also ask their clients what they believe their strengths and weaknesses are (Gray *et al*., 1999a). A consultant in Gray *et al*.'s (1999a) study also mentioned that one had to be careful at this stage because the client was often feeling vulnerable.

Once the consultant has discussed the current situation on the farm, he then works through his recommendations for improving the farm system, a point mentioned in other studies (Rogers *et al*., 1996b; Gray *et al*., 1999a). This includes the issues the client has asked him to investigate along with other issues the consultant has identified through his diagnosis. The consultant stressed that during this phase it is critical that he is very clear about his recommendations (e.g. "you don't want to be waffley, that's for story writers and people who love English"). For example, he might state that "I think there is an opportunity in relation to pasture harvested and the cost of milk production". The consultant will justify his diagnosis with evidence, something consultants in other studies were reported to have used (Rogers *et al*., 1996b; Gray *et al*., 1999a). The consultant will then point out areas that need to be considered if the client is to improve performance. In some instances the consultant has collected all the data he needs to determine where the weaknesses are, but in other cases he will tell the client that he needs to collect and, or analyse more data on specific areas during subsequent visits. In other studies the consultants have often asked their clients for possible solutions to the problems they have identified (Rogers *et al*., 1996b; Gray *et al*., 1999a), a point the consultant did not mention. In other studies, once the options are identified, these are then discussed, the best option is chosen and then the implementation of the option is discussed (Rogers *et al*., 1996b; Gray *et al*., 1999a). The consultant also discusses his recommendations with his clients before the client makes a decision on whether or not to make the change. During the discussion session, the consultant will also write up his field notes. Normally he does this while the client is making a cup of tea and he will talk to them at the same time. These notes are hand written and would cover about a page. This activity was not mentioned in other studies (Rogers *et al*., 1996a,b; Gray *et al*., 1999a,b, 2000). However, some studies (Rogers *et al*., 1996b; Gray *et al*., 1999a; Bruce, 2013) reported that some consultants used a cash forecast budget during this phase of the visit to set out the current situation and then demonstrate the impact of their proposed change to the client. This was not undertaken by the consultant during the first consultancy visit to a client.

At the end of the visit, the consultant will ask the client if they have covered everything. A key point for his is that he leaves the client with something of value. This may be technical information or it may be that he leaves them thinking about the longer-term and where they might take the business. The consultant then discusses the frequency of future consultancy visits for the coming 12 months that the new client would prefer. Once this is completed, he then organises the date and time for the next visit. The consultants in other studies (Rogers *et al*., 1996b; Gray *et al*., 1999a; Bruce, 2013) organised a follow-up visit, but there was no mention of a negotiation between the client and consultant over the nature of the consultancy package for the next twelve months.

The consultant stated that the first visit is about framing up (Beach, 1990; Lipschitz, 1993) the problems or issues facing a client and identifying where he can take the client in terms of improving the farm system. It is setting out the work the consultant can do with the client during his repeat visits over the next year. It may also identify actions that the client needs to undertake; such as putting their accounts into Dairybase. Other studies (Rogers *et al*., 1996b; Gray *et al*., 1999a; Bruce, 2013) have reported about the follow-up visit rather than a broader programme of work over the next twelve months. The consultant in this study has a longer-term perspective than that reported in the other studies.

4.3.2.2.8 Reporting and post-visit analysis

The consultant will undertake a detailed accounts analysis after the visit if the client is interested in improving the profitability of the business. Other studies (Gray *et al*., 1999a,b) reported that the majority of consultants analysed a client's accounts either before or during the visit. One consultant in these studies (Gray *et al*., 1999a,b) only analysed a client's accounts if the financial situation was constraining the farm business, however, they did not mention when this was undertaken. Importantly, many of the consultant's clients are more interested in improving milksolids production than profitability. Because the consultant believes that profitability is driven by the cost of milk production (farm working expenses/kg MS) and feed harvested per hectare, he believes that it is important that he analyses the client's accounts to determine their cost of milk production.

The consultant sets out his report on the drive home from the farm and records this using a Dictaphone. This allows him to utilise unproductive time and improve his efficiency. To maintain a professional image, the consultant provides a written report after each consultancy visit. The report is no more than three pages because his clients tend not to read lengthy reports. A copy of the report is retained and this acts as his file on the client which he can reference as required. Gray *et al*. (1999b) reported that five out of the six expert

consultants they studied provided their clients with a formal written report. However, one consultant just provided the client with a handwritten summary of the key points at the end of the visit.

4.3.2.2.9 Follow-up visit

The consultant in this study stressed the importance of repeat visits, and as such, he would expect every consultancy visit to have a subsequent follow-up visit, a point not made in other studies (Rogers *et al*., 1996b; Gray *et al*., 1999a; Bruce, 2013).

4.3.3.3 The problem solving framework used by the consultant

The previous sections discussed the physical phases of the consultant's engagement and first consultancy visit relative to the literature. This section compares the problem solving framework used by the consultant to the literature. As with other studies (Rogers *et al*., 1996a,b; Williams *et al*., 1997a,b; Gray *et al*., 1999a,b, 2000; Kemp *et al*., 2000; Bruce, 2013), rapport building was a critical element of the problem solving framework used by the consultant. Although not a focus of the study, because it was so strongly emphasised by the consultant, key findings in relation to rapport building are discussed in the following section before moving on to a discussion of the consultant's problem solving process for a first visit.

4.3.3.3.1 Rapport building

Although not a focus of this study, rapport building was highlighted as a critical aspect of the consultancy process during the first two visits. Rapport was built with a potential client to achieve a number of goals. First, it was used to secure an engagement visit, a point not previously reported in the New Zealand research. Second, it was used to secure and then retain the farmer as a fee-paying client. Again, this goal in relation to rapport building has not been explicitly stated in the New Zealand research. Third, it was used to develop a comfortable and relaxed working environment such that the client would freely provide sensitive information that the client required for effective problem solving, a point made by several other studies (Williams *et al*., 1997a,b; Kemp *et al*., 2000). During this early phase of the client-consultant relationship, the two former goals were more important than the latter goal.

The consultant prioritises his clients and for his most important clients he wants to make them his friend. He stated that they might not be a close friend, "but you will be intimate". As such, the consultant treats his clients as he would a friend and wants to develop a high level of trust with a client that places him as close to the client as possible in the relationship circle as shown in Figure 14. However, within his client portfolio, he has varying degrees of relationships and this reflects the variation in his client base. Developing a high level of trust with a client improves the consultant's client retention, a point not explicitly made in the New Zealand literature. The consultant has to be very professional with the advice he gives a client and he has to make sure his advice is objective, a point emphasised in other studies (Williams *et al*., 1997a,b; Kemp *et al*., 2000).

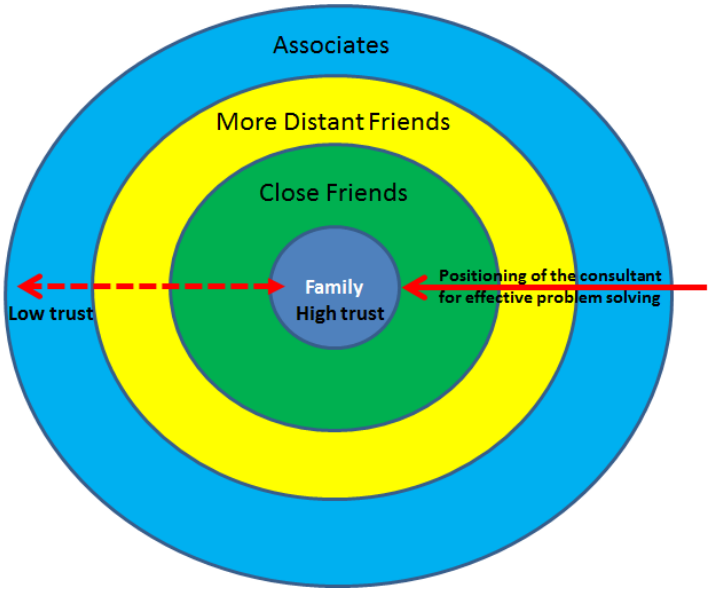


Figure 14 Positioning in the "relationship circle

A range of techniques were used by the consultant to develop rapport during the phases of a consultancy visit. This begins with the first contact over the telephone and continues throughout the visit and post-visit phases. As reported in other studies (Rogers *et al*., 1996a,b; Gray *et al*., 1999a,b) upon arrival at the farm, the consultant greets the client and then undertakes a period of ice-breaking conversation to further build rapport with the client. The consultant stressed that this was important because at this stage he has yet to develop a high level of rapport with the new client. Other studies (Williams *et al*., 1997a,b; Gray *et al*., 1999a,b; Bruce 2013) have also stated that during the early phases of the visit to a new client, rapport is being established. The consultant reiterated the importance of being cheerful and positive when greeting the client even if he does not feel this way. One of his rules is to always maintain a happy and positive demeanour during a visit. He believes that clients prefer to work with happy positive people. Being positive has been mentioned in other studies (e.g. Williams *et al*., 1997a,b; Kemp *et al*., 2000), but not to this degree. As with the other studies (Rogers *et al*., 1996a,b; Gray *et al*., 1999a,b), the ice-breaking conversation normally occurs at the kitchen table over a cup of tea or coffee, but it may occur at the cow shed or out on the farm depending upon the client. Topics of conversation might include the weather, the season, the pay out, or current state of the farm. Other studies (Gray *et al*., 1999b; Kemp *et al*., 2000) have mentioned sport, pets, the house and garden, the family and local events.

The consultant stressed that a novice consultant required good interpersonal communication skills and that these were more important than analytical skills. The consultant believes that the former are much more difficult to teach than the latter. As such, he believed that it was important for consultancy firms to recruit novice consultants with good interpersonal communication skills. Interestingly, in the studies by Kenny and Nettle, 2012, 2013) of New Zealand farm management consultants in relation to capability, the focus was on technical and problem solving skills, not interpersonal communication skills.

4.3.3.3.2 The problem solving process

The problem solving process used by the consultant can be usefully separated into the eight steps identified in the literature (Rogers *et al*., 1996b; Gray *et al*., 1999b) of: gather information, identify the problem, determine alternatives, analyse alternatives, choose alternative, plan implementation, implementation and evaluation. As reported in other studies (Rogers *et al*., 1996b; Gray *et al*., 1999b), the consultant spent most of his time during a first consultancy visit on information gathering and diagnosis. This is a "situation assessment" (Lipshitz and Shaul, 1997; Klein 1998) which produces "situation awareness" (Endsley, 1988.) Limited time was spent on the other steps in the problem solving process. The following sections will describe how the consultant undertakes each of these steps in the problem solving process and compare the findings to the literature.

4.3.3.3.2.1 Information gathering

As with other studies (Rogers *et al*., 1996a,b; Gray *et al*. 1999a,b) information gathering was used by the consultant to collect information for a number of reasons. First it was used to build a picture of the client, farm family and farm business. Second it was used to build rapport with the client. Third it was used to diagnose the problems faced by the client. Fourth, it was used to tailor solutions to the client's situation. The information is also used to "baseline" the farming system so that the consultant has a record of where the farm was at before he intervened. This is important for demonstrating to the client the impact of his involvement and the value he has added to the business over time. The study also highlighted the importance of rapport building in relation to information collection, particularly in relation to sensitive information around finance and long-term goals, a point stressed by other researchers (Williams *et al*., 1997a,b; Kemp *et al*., 2000).

Information gathering by the consultant occurs from first contact and continues until the end of the visit and also post-visit, a point made in other studies (Rogers *et al*., 1996b; Gray *et al*., 1999b). As mentioned by Gray *et al*. (1999b), the majority of the consultant's time during a visit is spent on information gathering or what Lipshitz and Shaul (1997) refer to as "situation assessment". The main method of data collection used by the consultant was semi-structured interviews. Observation was an important information collection method and the consultant also used documents (financial accounts, soil tests etc.) as another source of information. Other studies have reported similar findings (Rogers *et al*., 1996b; Gray *et al*., 1999b; Bruce, 2013), emphasising the importance of interviewing (or questioning and listening skills) and observational skills in consultancy, a point previously made by Williams *et al*. (1997a,b). Other studies have identified a range of techniques used by consultants to collect data (e.g. open, closed, probing, "why" and teach back questions as well as laddering techniques) (Williams *et al*., 1997a,b; Rogers *et al*., 1996b;Gray *et al*., 1999b, Bruce, 2013). However, an important point made by the consultant when conversing with a client was not to "play the blame game". The consultant avoids being judgmental and asking questions or making statements that suggests he is "blaming" the client for the businesses poor performance. Kenny and Nettle (2013) in their study of novice consultants' use of the Whole Farm Assessment and Planning program for training reported that assistance was needed to help novice consultants keep questions conversational and not sound judgemental.

Although the consultant follows a general mental script (Endsley, 1988) in terms of his information gathering process, it is not rigidly structured in that he does not move through the process topic by topic. As such, the information gathering process used by the consultant alternates between being data- and goal-driven (Endsley, 1997; Gray *et al.*, 1999a; Bruce, 2013). Normally, the consultant collects data using data-driven methods such as conversation and observations, but this process becomes goal-driven when he recognises a relevant cue that highlights an issue or problem. He then begins collecting data actively that relates to that cue. The consultant did have a mental checklist of information that he aimed to collect on a visit. This was also reported in a study by Gray *et al.* (1999a). The consultant would assess if he had covered the required information before terminating his visit.

In terms of the timing of information gathering, the consultant used a mental script or schema (Endsley, 1997) that he followed for most clients. This process was similar to other studies for a first consultancy visit (Rogers *et al*., 1996b; Gray *et al*., 1999b) with a few exceptions. The first exception was that the consultant undertook an engagement visit before the first formal consultancy visit, something not reported in other studies (Rogers *et al*., 1996b; Gray *et al.*, 1999b; Bruce, 2013). This meant that he had collected a lot more information before the first formal consultancy visit about the client than the consultants in the other studies (Rogers *et al*., 1996b; Gray *et al.*, 1999b; Bruce, 2013). The majority of consultants in other studies (Rogers *et al*., 1996b; Gray *et al.*, 1999b; Bruce, 2013) collected a reasonable amount of information during first contact, the period of pre-visit analysis and preparation and on the drive out to the farm. In contrast, the consultant collected limited information during these phases, mainly to save time and because he preferred to collect information on the farm, but also because in terms of information about the district, he had already collected good information about this through previous visits and through his networks. Information collection during the other phases of the consultancy visit were similar to that reported from other studies (Rogers *et al*., 1996b; Gray *et al.*, 1999b; Bruce, 2013).

The types of information collected by the consultant in this study were similar to those reported in other studies (Rogers *et al*., 1996b; Gray *et al.*, 1999b; Bruce, 2013). One exception was that the consultant collected information about the power relationships between decision makers on the farm. Other studies had not reported this, although Bruce (2013) reported that the consultant in her study collected information of the family dynamics. Unlike most of the consultants in other studies (Rogers *et al*., 1996b; Gray *et al.*, 1999b; Bruce, 2013), the consultant in this study collected limited financial information during the first visit. The financial accounts were normally obtained from the client at the end of the visit, but not analysed until after the visit. However, one of the consultants in the study by Gray *et al*. (1999b) did not analyse the accounts unless he believed there was a problem. The consultant distinguished between sensitive and non-sensitive information during information gathering. He stressed the importance of rapport in gaining access to sensitive information, particularly around the client's goals. Other studies (Williams *et al*. 1997a,b; Kemp *et al*., 2000) have stressed the importance of rapport in accessing sensitive information from clients for problem solving.

A critical issue identified by Kenny and Nettle (2012, 2013) for training novice consultants is the amount of information they need to collect during a visit to a client. The consultant provided some insights into how he reduces the amount of information he has to collect on a visit. The consultant's mental schema (Endsley, 1988) performed an important role in reducing the amount of information he has to collect during a visit. On the drive out to the farm for his first formal consultancy visit, the consultant plans the visit and part of that planning process is to consider four problem (or issue) sets from memory (Figure 15). These include: 1) seasonal problems and 2) district problems the client might have, 3) the problems the client identified as important during the engagement visit and 4) the "other" problems the consultant diagnosed as important to the client during the engagement visit. The consultant's mental schema (Endsley, 1988) has a set of symptoms associated with each problem within the four problem sets. These dictate the information that the consultant needs to collect to confirm or refute the existence of problems within these four problem sets. Little has been written in the literature about how consultants might constrain information gathering to make it more effective. Bruce (2013) did report that the consultant in her study believed that it was important to determine the real reason for the visit so that he could focus his efforts. Lipshitz and Shaul (1997) reported that experts used more information and more sources when making decisions and are more efficient at collecting information than novices, but they did not provide any insights into how they did this. Gray *et al*. (1999a) reported that the classification schema used by the consultants in their study allowed them to operate with missing information, but they did not discuss how the consultants managed the information collection process to make it more efficient.

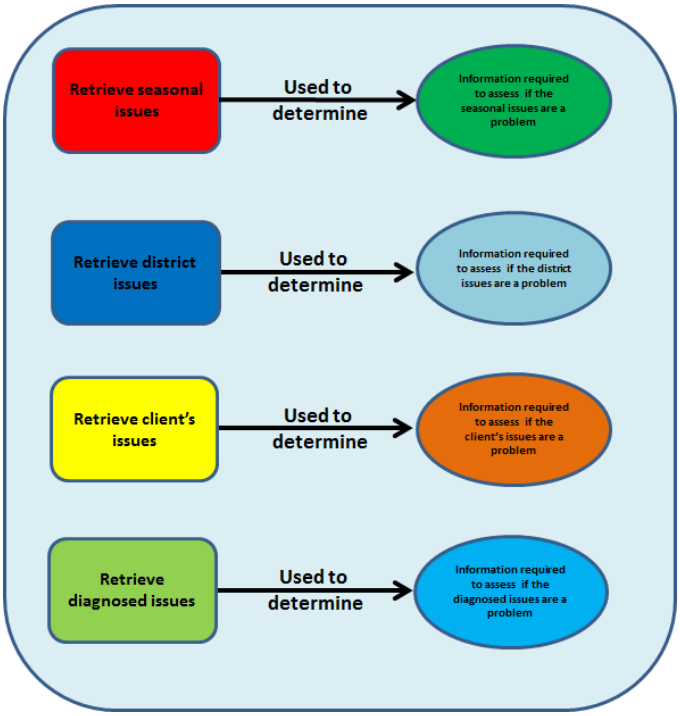


Figure 15 The process used by the consultant to reduce the amount of information he must gather

The issues or problems that the consultant identifies, triggers him to collect information across a broad set of information categories (Figure 16). For any issue or problem that he has identified, the consultant will collect information about how the client manages the problem area, the client's attitudes around the problem area, performance indicators associated with the problem area, the nature of the resources associated with the problem area and the client's use of technology in relation to the problem area (Figure 16). There may be other information categories, but these have yet to be identified. For each of these information categories, the consultant has a mental checklist or schema that sets out the specific information he has to collect. The role of mental schema and classification in information collection has been reported in the literature (Lipshitz and Shaul, 1997, Gray et al., 1999a), but not to this level of specificity. Further detail on these schemas will be provided in the following sections.

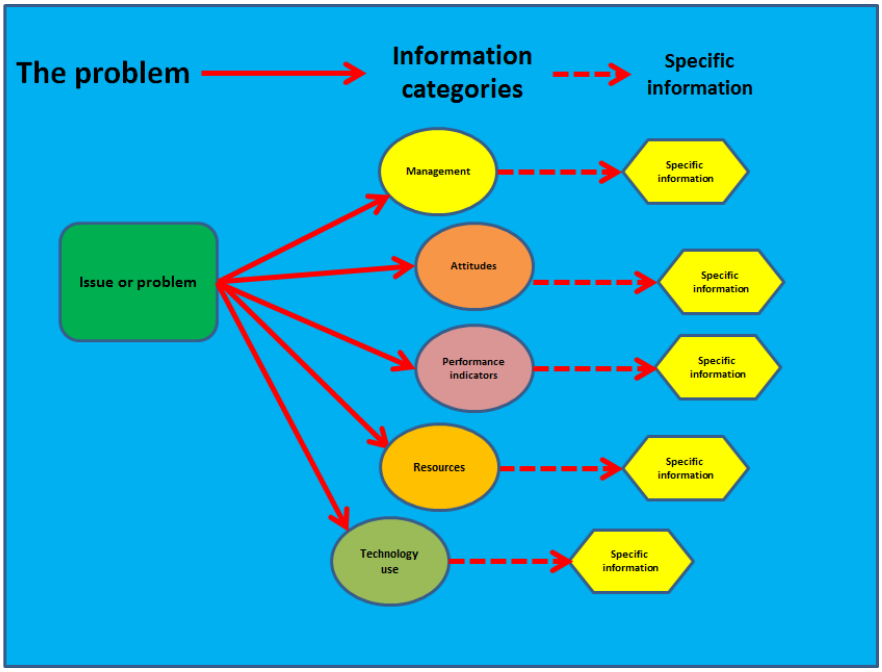


Figure 16 How the problem constrains information gathering

As with other studies (Gray *et al*., 1999a, 2000), the consultant's classification schemas allowed him to infer missing information about the client and farm business. Examples of this were the inference that the consultant could draw about the labour on the farm after classifying the size and nature of the milking shed. He could also infer potential problems that the client might face from knowing the location of his farm. Similarly, he could infer if labour would be an issue from classifying herd size.

The role of the whole farm assessment in information gathering

The consultant stated that a template might be useful for a novice consultant to ensure they collect the required information and provided them with check points for them to work with. However, he believed that one of the problems for a novice consultant using the whole farm assessment sheet is that he has to collect all the data about the farm. This was highlighted as a problem with the Whole Farm assessment and Planning (WFAP) program evaluated by Kenny and Nettle (2013). The consultant believed that much of the data collected using this approach may be irrelevant to the client which wastes both the client's and the consultant's time. To overcome this problem, he also suggested only doing some blocks within the whole farm assessment sheet for a visit and then doing others at the next visit. This is in line with the feedback from the evaluation of the WFAP program which suggested that a two hour visit would be ideal (Kenny and Nettle, 2013). A key skill for the consultant is being able to quickly identify what the issues are on the property for a new client without collecting large amounts of data. The method the consultant uses to do this is shown in Figure 15 and this could be incorporated into the WFAP program. One of the recommendations from Kenny and Nettle's (2013) evaluation of the WFAP was to streamline the amount of information required from the farmer. The following section describes how the information is used by the consultant.

4.3.3.3.2.2 Picture building

The information gathered by the consultant is of little use until he has processed it. As with other studies (Gray *et al*., 1999a,b; Bruce 2013), the consultant processes the information he has gathered using a range of techniques. These include benchmarking, comparative analysis, classification, triangulation and retrodiction (Figure 23), processes also reported by Gray *et al*. (1999a,b) and Bruce (2013) with the exception of retrodiction. Retrodiction (Schreiber *et al*., 2000) is the process of calculating past values and the consultant does this because he visits the farm at one point in time and must make some assessment of what state the farm has been in during previous years or time periods. Trend analysis has been identified in other studies (Rogers *et al*., 1996b; Gray *et al.,* 1999a; Bruce, 2013), but it was not mentioned by the consultant in this study. This may be because the pilot nature of the project prevented adequate data collection or that this was undertaken during the accounts analysis phase which was not investigated. These processes shown in Figure 17 are used in tandem to both build a picture of the client, farm family and farm business and diagnose problems in much the same way as reported by Gray *et al*. (1999a,b) and Bruce (2013). The outputs from this process include a mental picture of the farming system and the identification of the problems and the causes of those problems as reported by Gray *et al*. (1999a,b) and Bruce (2013). However, the consultant also uses this process to identify constraints to the client's business and the strengths and weaknesses of the client and farming business. Although mentioned in other studies (e.g. Bruce, 2013), these were not identified as explicit outputs from this process as depicted in Figure 17.

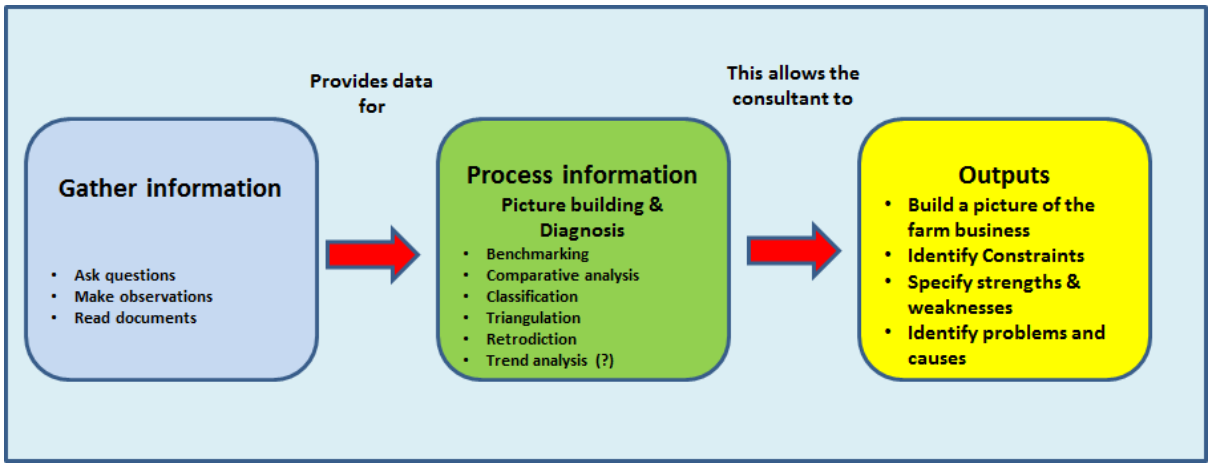


Figure 17. The process followed by the consultant to build a picture of the farm business and diagnose problems

This work highlights the distinction between data, information and knowledge as proposed by Boisot and Canals (2004) (Figure 18). The consultant is receiving stimuli from the world during his visit to the client. This stimuli is transformed into data through the consultant's perceptual filters that are based on the consultant's knowledge, a combination of mental models and values. It is also related to the way the consultant frames the situation (Beach, 1990.) The consultant then transforms this data into information using his conceptual filters. Finally, the information is processed and transformed into knowledge about the client, farm family and farm business. This is a useful model for thinking about the distinction between data, information and knowledge in relation to a novice versus an expert consultant. It highlights where differences may occur between them that are reflected in their relative abilities to diagnose and solve problems for a client. Firstly, a novice consultant may not recognise stimuli from the real world as an important source of data because they have not been able to frame the problem. For example, they may fail to observe important aspects of the pasture or the herd when on a farm inspection. Second, they may collect the required data, but be unable to process it into useful information. Thirdly, they may obtain the required information, but be unable to process it into a useful form of knowledge about the client or farm business. The following paragraphs discuss different processing techniques the consultant uses to turn information into knowledge about the client and the farm business. This is important because it highlights that although the information checklist provided by the Whole Farm Assessment and Planning program in part overcomes some of the problems in terms of data and information, a novice consultant needs more than a checklist, because a critical aspect of turning that information into useful knowledge for action is the method by which such information is processed.

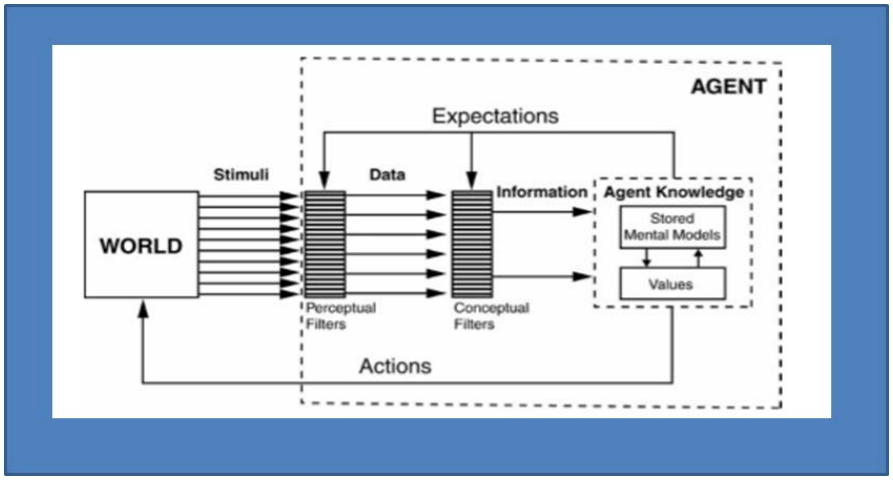


Figure 18 Data, information and knowledge (Source: Boisot and Canals, 2004)

The simplest process used by the consultant to process information was triangulation. Triangulation was used primarily to verify the accuracy of the information obtained from the client. It is important because the consultant is not the problem owner (Gray *et al*., 1999b) and as such, he does not have transparent information for problem solving. He also stressed that it is important he does not accept information from a client at face value. His policy is to cross-check all the information that he obtains from a client. Triangulation is used by the consultant to develop an accurate picture of the client, farm family and farm business, a finding also reported by Bruce (2013). This is important for effective problem solving. The consultant mentioned that problem solving is constrained if he does not have accurate information about the client and farm business. He places particular emphasis on triangulating what the issues the client thinks are important. The consultant used four types of triangulation: 1) temporal triangulation, 2) triangulation by information source, 3) triangulation of the client's perceptions of the state of farm resources with the observed state, and 4) triangulation of client perceptions of behaviour and observed client behaviour. For the former, the consultant was verifying that the farmer was providing him with consistent information both across visits and at different times within a visit. In contrast, triangulation by information source occurred when the consultant obtained information from his interview process and then compared it with observations in the field or information calculated from a different source. The consultant also triangulates what the client perceives with what the consultant observes and what says he does with what he actually does. These distinctions have not been made in the literature.

The Whole Farm Assessment and Planning program stressed that novice consultants should ask "cross-checking" questions, so the need for triangulation was identified in the program (Kenny and Nettle, 2013). However, Kenny and Nettle (2013) reported that the cross-checking questions made the process unduly lengthy. It would appear from this that it would be useful to provide novice consultants with triangulation by information source techniques that would reduce the number of cross-checking questions they

need to ask. Focus would shift to observational skills (Klein's (2006) perceptual discrimination) and different types of cross-checking calculations.

The bulk of the information processing that the consultant undertook was benchmarking, comparative analysis and classification. Benchmarking and comparative analysis were used to classify (the client, farm family and farming system and this classification process "built the picture" of the farming system. For example, classification allowed the client to **position** the client's farming operation relative to others in his client base. For example, after classification of the information the consultant could state that the new client has a **large** farm running a **system 3** operation that has **above average** per cow and per hectare milksolids production and an **above average** level of debt. Other studies have stressed the importance of benchmarking, comparative analysis, and classification in helping the consultant build a picture of the client, farm family and farm business (Gray *et al*., 1999b; Bruce, 2013). The process used by the consultant for classification is shown in Figure 19 and is similar to those reported in other studies (Gray *et al*., 1999b; Bruce, 2013). First the consultant gathers information on some factor of interest. He then compared the factor to benchmarks or standards that he has in memory. On this basis he then classifies (Schreiber *et al.*, 2000) the client, farm family, or farm business. The process is used across a wide range of factors that make up the farming system. This includes the client, farm family, resources including infra-structure, the farming system and the physical and financial performance of the business. Similar results have been reported by other studies (Gray *et al*., 1999b; Bruce, 2013).

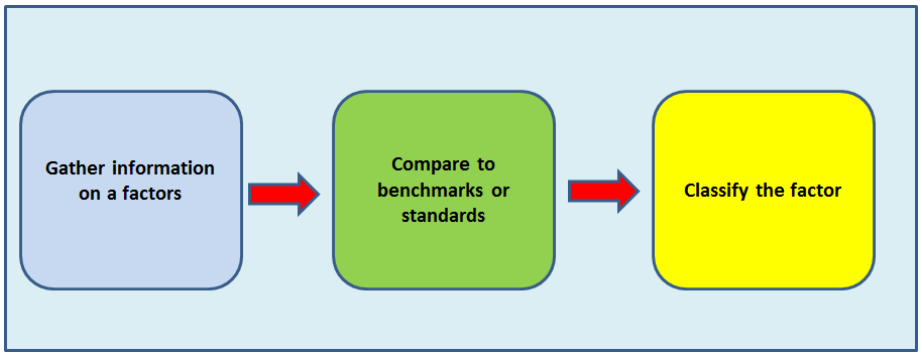


Figure 19 The process used for classification by the consultant

During the first consultancy visit, the consultant classifies four key areas: the client and farm family, the farm resources, the production system and physical performance and the financial performance (Table 12). Importantly, classification of the client's financial performance does not occur until after the visit because the accounts analysis is not completed until he returns to the office. The consultant classifies the client and farm family across a range of parameters (Table 12). These range from power, interests, motivations, degree of and openness through to management capability and attitudes (Table 12). This is normally achieved by comparing what the client has said and observations of the client's behaviour, with mental standards the consultant has built up over time in his memory. A triangulation process is used to assess the accuracy and reliability of the client's information provision, a process also used by the consultant in the study by Bruce (2013). The classification schema for the client and farm family in Table 12 has similarities to other studies. Bruce (2013) also identified management capability reliability of information provision and personality. She also identified family dynamics which are similar to "power in decision making". However, this concept also included whether or not family members had a shared view about what the issues were facing the farm business, a point not made by the consultant in this study. Bruce (2013) also identified risk attitude, and enterprise preferences as areas the consultant classified that were not identified in this study. The enterprise preference reflected the context because the consultant in Bruce's (2013) study was a sheep and beef consultant. Gray *et al*. (1999a, 2000) identified that the consultants in their studies classified the farm family in terms of stage of the farm family life cycle. This was useful because farm families faced different problems at different stages of the life cycle (e.g. debt and low levels of discretionary cash during the entry phase and succession problems as they neared the exit phase). This was not captured in this study, but reflects the time constraints place on data collection by a pilot study.

Table 12 Classification areas used by the consultant

Classification Area	
Clients and farm family	
	Power in decision making Interest in the business Roles in the business Age group Personality type Degree of openness What motivates them (Strategic and/or tactical focus) Accuracy and reliability of information provision Management capability by area • Pasture management • Herd nutrition • Mating management • Etc. Attitudes to key areas of management
Quality of resources	
Quality of Infra-structure	Herd Replacements Pastures Soils Etc. Milking shed Subdivision Races Water supply Effluent system Drainage Irrigation Feed pad Etc.
Production system and physical performance	
	Farm size Herd size Farm system type Milksolids/ha Stocking rate Milksolids/cow Farm state on the day of the visit Etc.
Financial performance	
	Debt levels Etc.

An important area of classification is in terms of the client's management capability across a range of areas (Table 12). The consultant used four processes to assess this (Figure 20). The consultant used four processes to classify the client's management capability in a specific area. First he collected information on their decision making and compared it to best practice. Second, he collected information on the client's assessment of the farm's resources in relation to the management area and compared this to his own assessment. Third, he compared what the client stated his practice was in a particular management area with what he observed his "actual" practice was. Finally, he collected information about the physical performance of the client's system in relation to the management area of interest and compared this to benchmarks for the district. This is similar to the findings from Bruce (2013), but with some differences. Bruce's (2013) did not report that the consultant in her compared the client's description of their practice with actual practice. In this study the consultant did not mention assessing the client's understanding of important principles. However, he did mention that he used this classification process to diagnose "knowledge gaps" suggesting that he was assessing their knowledge of key principles when he compared their decision making to best practice. These are important processes for a novice consultant to understand.

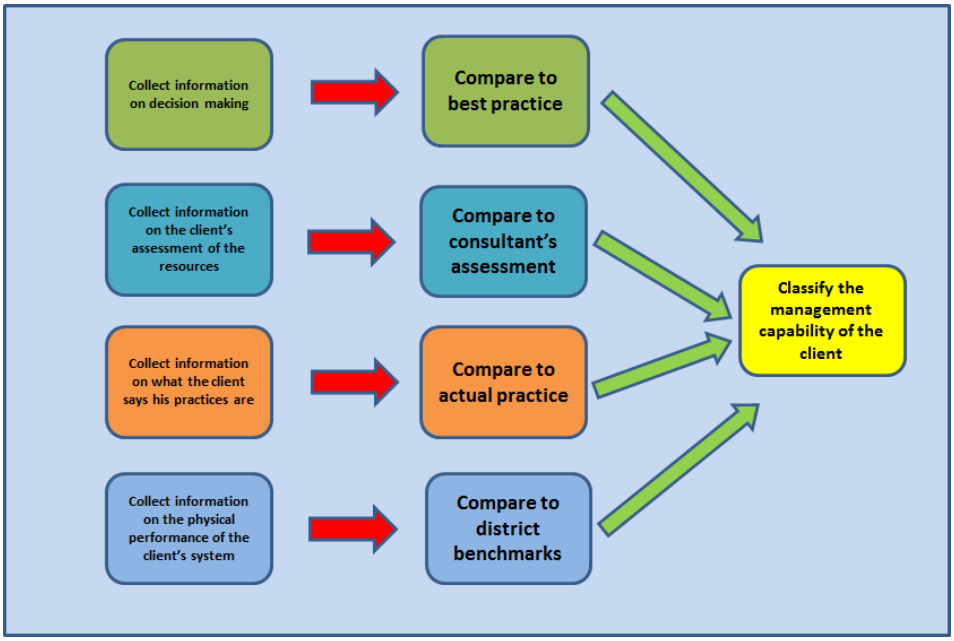


Figure 20 The process used by the consultant to classify the client's management capability by area

The consultant used a process that involved benchmarking and comparative analysis to build a picture of the client's resources including important infra-structure (Figure 21). The consultant separated resources into those he would expect to find on every dairy farm (herd, subdivision, water supply) and those he might only find on some dairy farms because of the context (e.g. wet soils, summer dry climate and so on) (Figure 21). For the generic resources, he collected information about both the quantity and quality of each resource e.g. size of herd and quality of herd. To assess the quality of a resource, the consultant had a number of indicators that he used to benchmark. For example, he might assess the quality of the herd by comparing its PW and BW to industry standards. For the soil resource he might compare the Olsen P and pH levels to industry standards and so-on. For context specific resources, the consultant first assesses if the resource is present or absent. For example, he would expect a farm in an area where heavy wet soils is an issue to have intensive drainage. If the farm has heavy wet soils and it does not have drainage, then this would highlight a potential problem. Other studies have mentioned that consultants assess the resources on a farm (e.g. Bruce, 2013), but they do not set out the process used by the consultants in this degree of detail.

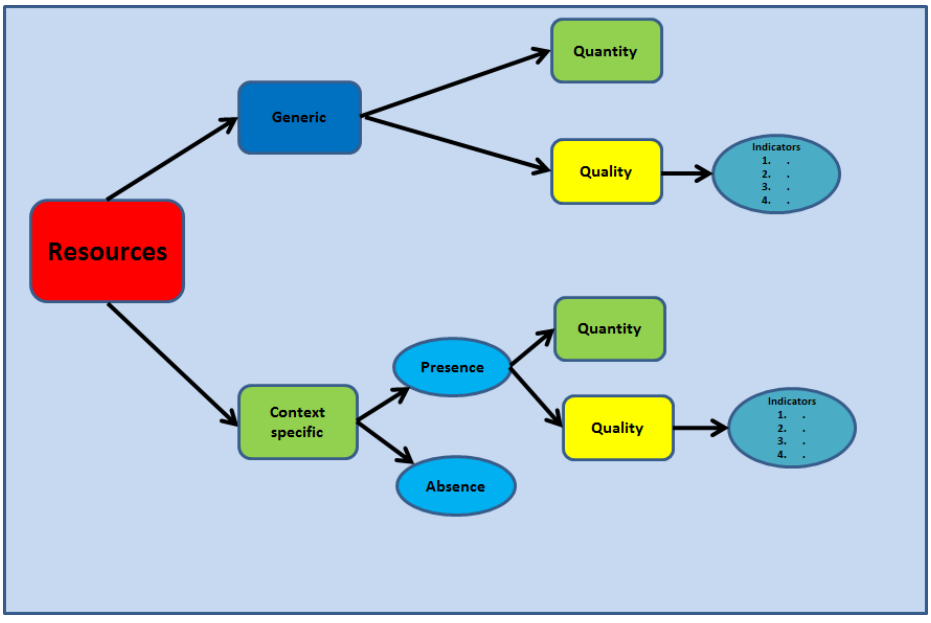


Figure 21 The consultant's resource assessment schema

The consultant classified the client's farming system in terms of scale based on farm and herd size which were compared to benchmarks for the district or sub-district. The client's farm (herd) was classified as small, average or large, something also reported in other studies (Gray *et al*., 1999a, 2000). The consultant also classified the clients farming system type (types 1 – 5) based on the amount of brought-in feed and their physical performance levels. The consultant in the study by Gray *et al*. (1999a, 2000) classified dairy farms as high input or low input, but this work was undertaken before DairyNZ had developed its farming system type categories. Information on system type and farm location was used by the consultant to classify the client's physical performance as poor, average or good for the district or sub-district. The consultant had physical performance benchmarks for each district or sub-district by farming system type. This allowed him to quickly determine if the client was a high or low producing farmer. The dairy consultant in the study by Gray *et al*. (1999a, 2000) classified farmers as low or high producing, but there was little detail about benchmarks or if he used district by farming system type benchmarks. Rogers *et al.* (1996a) in a study of three expert sheep and beef consultants reported that they all used physical indices to look for trends or a significant deviation from industry standards or benchmarks in the consultants' own databases. However, they did not mention the use of a classification process, rather, they reported on their use for problem diagnosis. Because the consultant was also observing the farm on one day in the year, he also classified the state of the farm on that day as typical or atypical. This was important in terms of drawing inferences about the management of the farm for problem diagnosis. No mention of this was made in other studies, but it is an important point for a novice consultant to understand.

The final area where classification was undertaken by the consultant for picture building purposes was in relation to the financial performance of the business. The consultant classified the client's business in terms of debt levels (low, average, high) during the first consultancy visit. However, he also classified the farm's financial performance in three key areas (1) liquidity, 2) profitability and 3) solvency) after the visit. Post-visit, the consultant undertook an accounts analysis and estimated a range of ratios which he then compared to benchmarks and used to classify the clients financial performance across the three key areas. Rogers *et al*. (1996a) in a study of three expert sheep and beef consultants reported that they all used a range of financial indicators during the problem solving process. However, they did not classify the financial indicators into those associated with liquidity, profitability and solvency and nor did they mention their use in the classification process. However, they did mention these indicators were used for problem diagnosis. The following section will compare the processes the consultant uses to identify and diagnose problems with those reported in the literature.

The consultant also uses his classification process to identify the strengths and weaknesses of the client's farm business (Figure 22). Various factors within a range of broad categories (client, farm family, resources, production system, physical and financial performance) are classified using benchmarking or comparative analysis into those that negatively deviate from the average, average, and those that positively deviate from the average. The classification type is then used to infer what strengths and weaknesses the client has in relation to his farm business. In the diagram it shows that factors that are classified as negatively deviating from the average would be inferred as a weakness and those that are classified as positively deviating from the average are inferred as a strength. The terms negative and positive deviations from the average are used because some factors such as debt levels may be classified as above average, but this has negative connotations, and as such, it is classified as a negative deviation from the average. In contrast, if milksolids production per hectare was classified as above average, this has positive connotations as such, it is classified as a positive deviation from the average. Other studies (Rogers *et al*., 1996b; Gray *et al.*, 1999b) have mentioned consultants identifying the strengths and weaknesses of a client's farm business, but not the process they go through to do this. Generally, weaknesses tend to highlight potential problem areas for the consultant.

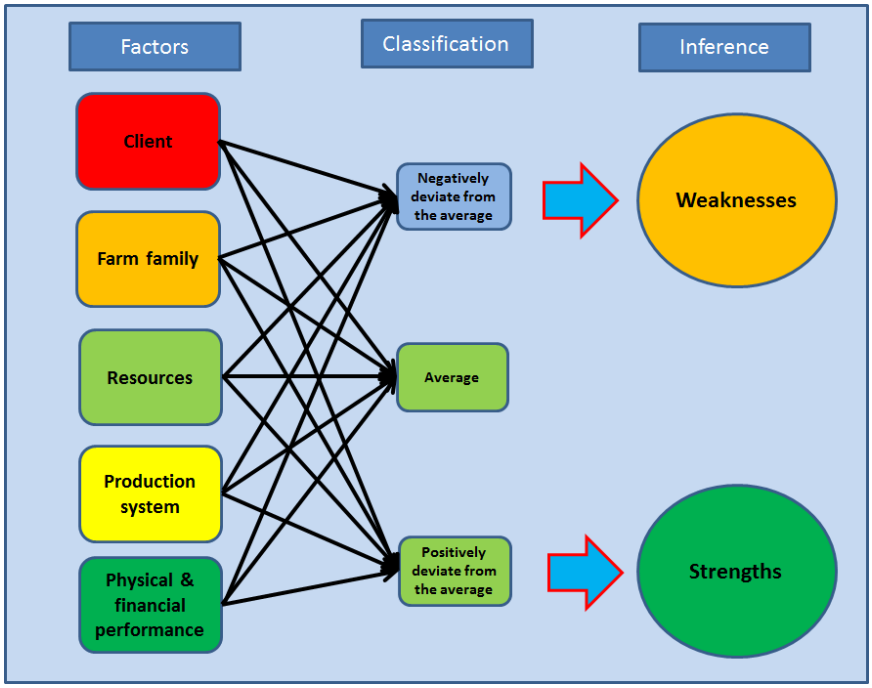


Figure 22 The use of the classification process to identify strengths and weaknesses

4.3.3.3.2.3 Problem identification

As with other studies (Rogers *et al.*, 1996a,b; Gray *et al.*, 1999b; Bruce, 2013), the consultant stressed the importance of keeping an open mind about the nature of the problem during diagnosis on a client's farm. The study highlighted that because client's face a wide range of problems and the consultant's visit is only half a day, his diagnostic process must be time-efficient. To limit the scope of his problem search the consultant uses a range of techniques (Figure 23). These techniques are based around classification, but vary in the level of complexity. At its simplest level, the consultant simply classifies the season in which the visit is occurring or the district in which the client's farm is located. These classifications link to mental schema (Lipshitz and Shaul, 1997) about possible client problems (or issues) either for that specific season (e.g. spring – management of pasture quality) or that specific district (e.g. farms in district A normally have wet soils problems) (Figure 23). The mental schema then sets out the information the consultant needs to collect to confirm or refute the existence of such problems.

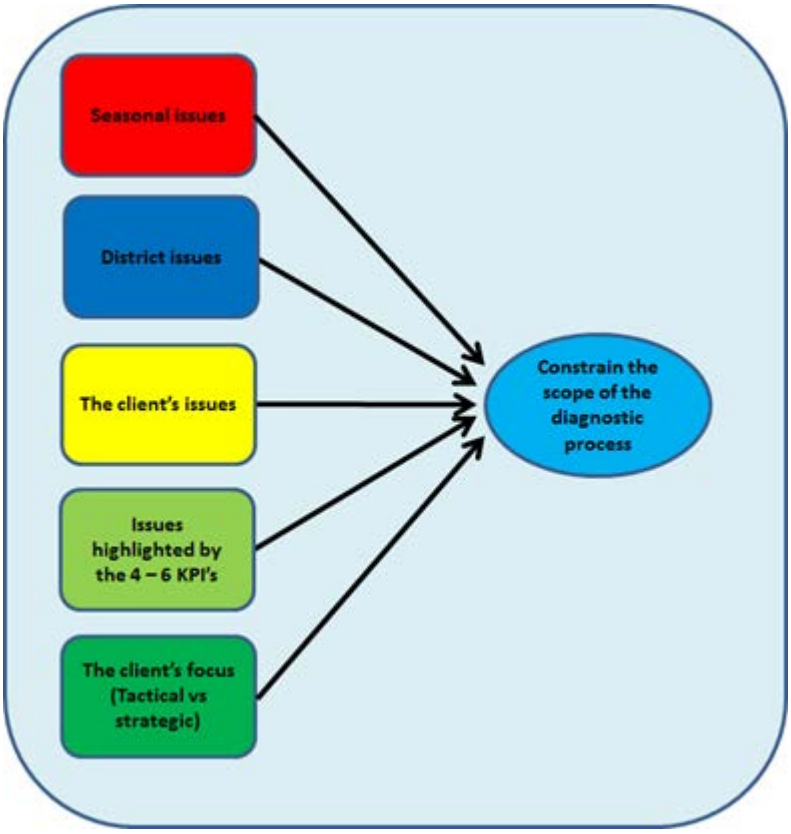


Figure 23 The process the consultant uses to limit his problem search

At a more complex level, the consultant identifies what problems (or issues) the client would like him to investigate. The consultant uses interview techniques and observations to assess what these problem areas are. He also uses triangulation techniques to assess that the problems the client says he is interested in are really the problems that are important to him. Once the client's problems are verified, these are classified and then mental schema (Lipshitz and Shaul, 1997 are activated to determine what information the consultant needs to collect to confirm or refute the existence of such problems. A similar process is used to ascertain whether or not the client is interested in strategic and/or tactical problems (Figure 23). This again activates a mental schema which determines what information the consultant needs to collect to confirm or refute the existence of such problems. A more complex process is used to identify other problems based on key performance indicators that the consultant uses. Other studies (Gray *et al*., 1999a,b, 2000) have described the role that classification schema (Lipshitz and Shaul, 1997) have played in reducing the search space for a problem, but this has been in general terms, not as specific sub-processes as shown in Figure 23.

In terms of the consultant's use of key performance indicators, he uses a multi-step process to identify potential problems facing the client (Figure 24). First, the values for the key performance indicators for the farm are obtained or calculated. The consultant then classifies the farm system type on the basis of the amount of bought in feed and he also specifies the farming district. Using this information he retrieves benchmarks for that farm system type and district and then compares them to the key performance indicators for the client's farm. This information is then used to classify the performance of the client's farm as below average, average or above average. If the client's performance is classified as average or a positive deviation from the average, the consultant moves on to calculate or obtain the next key performance indicator. However, if the client's performance is classified as a negative deviation from the average, this identifies a potential problem and the consultant classifies the broad problem type. The consultant then draws on his mental schema of cause and effect relationships and hypothesises possible reasons for the poor performance. This process is used to specify the information the consultant must collect to confirm or refute the existence of the problem. The consultant then collects the information to confirm or refute the existence of the problem.

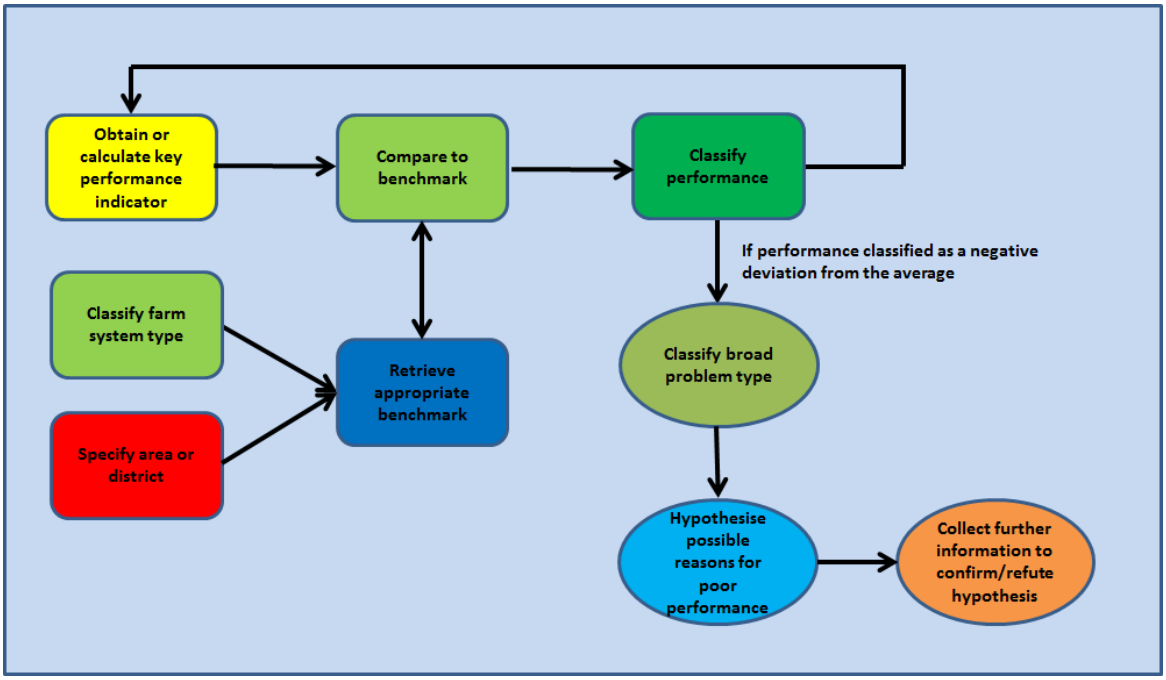


Figure 24 The use of key performance indicators in the diagnosis of problems on a client's farm

The diagnostic process described in Figure 24 is similar to that described by other studies (Rogers *et al.*, 1996a,b; Gray *et al.*, 1999a,b 2000; Bruce, 2013) where consultants have used benchmarking and comparative analysis to identify where indicators have deviated significantly from industry averages or standards which in turn identifies a potential problem. As with this study, the consultants in Gray *et al.*'s (1999a) study used causal chains (Benjamins & Jansweijer, 1994) from their mental models of farming systems. This sets out causes and effects to identify the information they would need to test their hypothesis. This information, as also reported in this study (Figure 24), was then collected through questioning and observation to confirm or refute the hypothesis (Gray *et al.*, 1999a). Further insights were gained into the diagnostic process as shown in Figure 25. Once the consultant had classified the broad problem type using his classification schema, in this case low profitability, he could then use his mental schema (Lipshitz and Shaul, 1997) to infer a range of indicators that might help him diagnose the exact nature of the problem. Attached to each of these indicators were a range of possible causes (Figure 25). Each possible cause of the problem had an associated set of symptoms or relevant cues that he will collect information on to confirm or refute the cause of the problem (Figure 25). A similar process was also reported by Gray *et al.* (1996a). This process is also similar to the feature matching process of diagnosis described by Klein (1997) in the naturalistic decision making literature. During feature matching, each problem type has a set of "features" or symptoms or relevant cues (Klein, 1997) as depicted in Figure 25. By gathering information and matching this to the features of the problem type, the existence of the problem type could be confirmed or refuted (Klein, 1997). The consultant in Gray *et al*.'s (1999a) study compared this to working down a diagnostic tree.

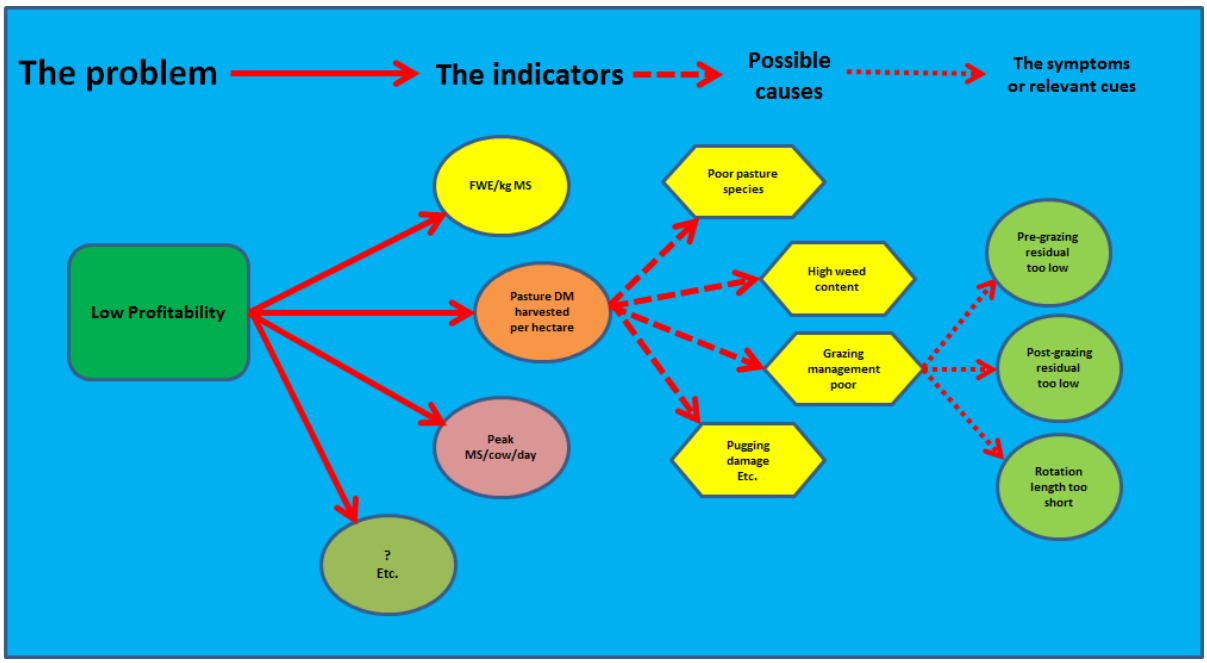


Figure 25 An example of the problem diagnosis process

The nature of the pilot study limited the collection of information about the problem type classification schema the consultant used in the diagnosis process. Other studies (Gray *et al.*, 1999a,b, 2000) have shown that consultants develop problem type classification schema to help them diagnose problems and that these schema are idiosyncratic to some degree. This will be an important area of future research. The study did highlight some problem types that the consultant used in his diagnostic process (Figure 26). For example, he used classifications schema at a high level around production, finance and labour. Under finance, he considers liquidity, profitability and solvency. In terms of profitability, the consultant considers issues around the cost of milk production (farm working expenses per kilogram milksolids) and the amount of pasture dry matter harvested per hectare.

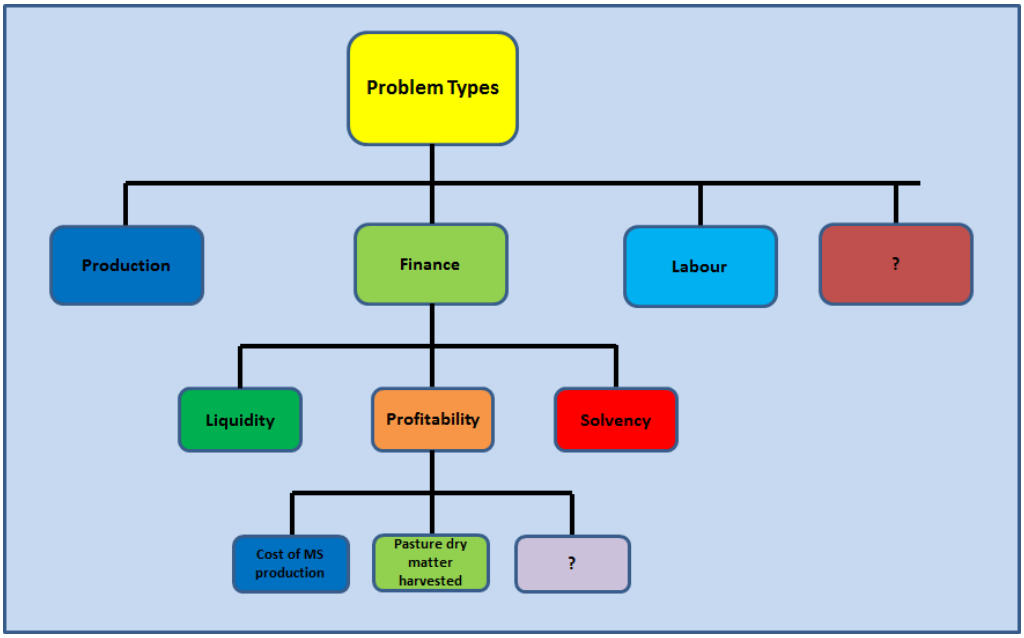


Figure 26 A partial problem type hierarchy

The consultant also used his diagnostic process to identify personal constraints that might be preventing the client improving the performance of his farm business (Figure 27). These constraints may also relate to the client's staff or family. The constraints included knowledge gaps, attitude problems and social norms (Figure 27). A knowledge gap was identified as a situation where the individual's (client, staff, family member) lack of knowledge limited the performance of the farm business (e.g. the client did not understand grazing management). An attitude problem occurred where the individual possessed the knowledge required to achieve high levels of performance, but chose not to use it constructively to enhance the performance of the farming system. For example, a client may know that ensuring post-grazing residuals are maintained at 1500 kg DM/ha is important for the performance of the production system, but cannot be bothered putting the effort in to achieve this. Finally, social norms are statements that regulate behaviour (Horne, 2001) or expectations that are shared by members of a group (e.g. local dairy farmers) (Hechter and Opp, 2001). Elsenbroich and Gilbert (2014, p. 4) defined a norm as "a rule of conduct derived from a social behavioural expectation". As such, social norms held by a "community" of dairy farmers can influence the behaviour of farmers in that "community". As part of the diagnostic process, the consultant is looking to identify social norms held by the client that may constrain the performance of his business. The example identified during the study was that many of the consultant's clients have norms associated with high per cow production. He stated that "there is still a lot of mana around production per cow". This suggests that a good farmer is viewed by many in the industry as someone who achieves high levels of milk solids production per cow. The consultant has obtained evidence-based research to show that there is no correlation between high per cow production and profitability. As such, to help the client improve the profitability of his business, he must change the client's perspective in relation to this **social norm**. As such, one of the roles of a consultant is to identify the social norms that may be limiting a client's business and change these. The consultant needed to identify the nature of the constraint (Figure 27), because the solution to each of these constraints is different. For example, the solution to a knowledge gap was to improve the knowledge of the client or staff or family member. The solution to an attitude problem was to change the client's attitude. The solution to a social norm constraint is to change the client's perspective in relation to the social norm. Little has been reported on this area in the farm management literature. Orasanu and Connolly (1993) highlight the importance of norms in naturalistic decision making, but do not discuss how they can constrain decision making in the manner identified during this study. Fisher (2013) highlighted the importance of norms in shaping farmer behaviour, but not from a farm management consultancy perspective.

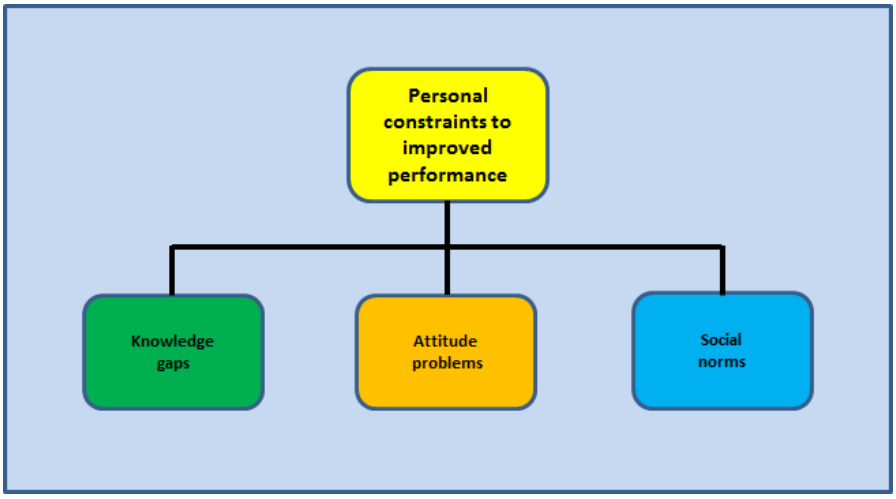


Figure 27 Personal constraints to improved performance

Much of the farm management consultancy literature has focused on problem diagnosis (Rogers *et al.*, 1996a,b; Gray *et al.*, 1999a,b 2000; Bruce, 2013). However, little has been reported on how farm management consultants identify opportunities for their clients. One example was identified in this study where the consultant identified opportunities for the use of new technologies on a client's property (Figure 28). Again, the consultant used a problem classification schema (Lipshitz and Shaul, 1997), and for each problem type, he had a set of technologies that could influence the performance of the farming system in relation to the problem type (Figure 28). For example, if the problem type was low levels of pasture production, the consultant had a set of technologies that influenced pasture production. He would then work through this set with the client to identify if there were opportunities for introducing technologies to improve pasture production. This process has not been previously reported in the farm management consultancy literature.

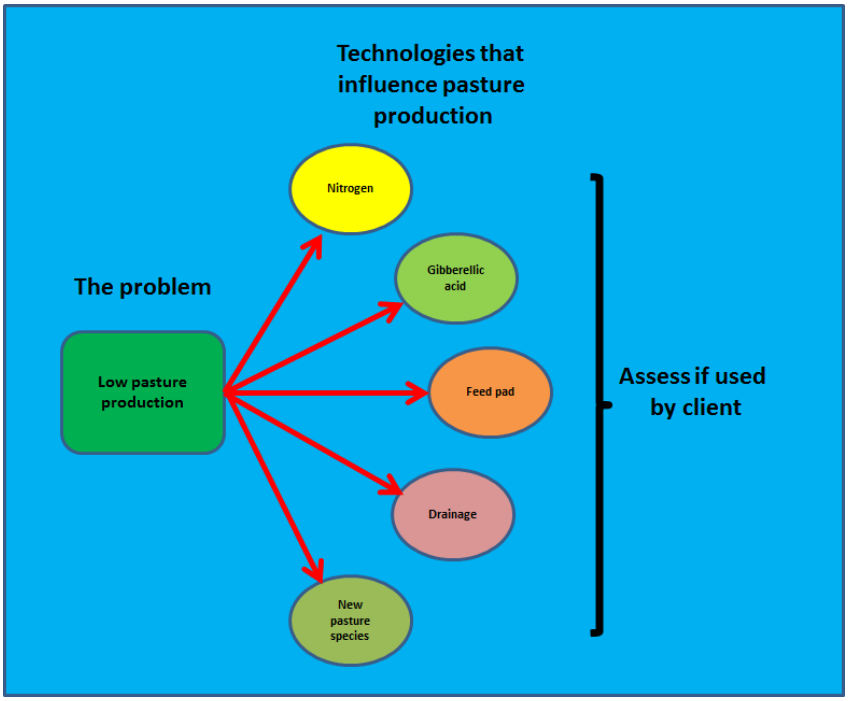


Figure 28 A mental schema used by the consultant to identify opportunities for new technology use

The study highlighted that the consultant uses considerable expertise to diagnose the problems associated with a client's business. However, the results also highlighted that it is not just the diagnostic process that is important, it is when and how the diagnosis is conveyed to the client that is also important. First, the consultant is never dealing with perfect information because he is not the problem owner, so there is always the risk of misdiagnosis. Second, identifying problems about a client, his family and his business has to be handled **tactfully**. This process places the client in a **vulnerable** position and a consultant has to be sensitive. Thirdly, much of the consultant's **professional reputation** hinges on his diagnostic ability and so he must take steps to preserve his reputation during this phase of the problem solving process. Much of the farm management consultancy literature focuses on the diagnostic process, but not on how the results of the diagnosis are conveyed to the client. Given the client is placed in a "vulnerable" position during this phase, this is an important aspect of the diagnostic phase. The following paragraphs discuss these points.

The consultant stressed that he must make sure his diagnosis is correct before he states it to the client. Failure to make a correct diagnosis can impact on his professional reputation and result in failure to secure a new client or the loss of an existing client. The risk of a mis-diagnosis can be high because the consultant is not the problem owner and as such is reliant on the client providing him with sufficient information for diagnostic purposes, a point previously made by Rogers *et al*. (1996b). The risk of mis-diagnosis is further compounded because during the first consultancy visit, a consultant has developed limited rapport with the client. As such, he is less likely to secure sensitive information that is important for effective problem solving, a point previously made in other studies (Williams *et al.*, 1997a,b; Kemp *et al.*, 2000).

During the problem resolution phase, the consultant clearly specifies the problems (or opportunities) he has identified, and then justifies his diagnosis with evidence. Once he has done this, the consultant asks the client for his views on his findings. This provides the consultant with feedback on his diagnosis. The client may agree with the consultant, state that he does not know if this is a problem or disagree with the consultant. If the client does not know if this is a problem, the consultant will explain his diagnosis. If the client disagrees with the diagnosis, the consultant will ask the client to elaborate and explain why he does not agree. In some situations, because of additional information provided by the client, the consultant might revise his diagnosis. However, to change his diagnosis, the client has to provide solid evidence that will refute the initial hypothesis and demonstrate that a wrong conclusion has been drawn. Again, this demonstrates the importance of "problem ownership" and securing sufficient information for effective problem solving, points made in other studies (Williams *et al.*, 1997a,b; Kemp *et al.*, 2000).

When reporting on problems, the consultant will do this in a positive way and avoids what he calls the "**blame game**". For example, he might notice that the client's herd does not have a high number of days in milk. However, he will mention this in a positive way so that the client does not feel that he is being "blamed" for not

achieving a high number of days in milk. Normally he will state this as an opportunity e.g. "I feel there might be scope for increasing the number of days in milk by ….". This is important because the client is in a vulnerable position. It is also important for maintaining a positive relationship with the client and ensuring good rapport. The consultant also sensitises the client to potential problems during the visit. During the farm inspection, the consultant tends to allude to potential problems, but he does not go into these in any detail. He does this to provide the client with an indication of the insights he is gaining about areas where the farming system could be improved. In effect, this primes the client before the problem resolution phase when the consultant discusses his diagnosis.

When diagnosing a potential problem, the consultant also classifies if the problem is a **sensitive** or **non-sensitive** issue with the client. He identifies this from verbal and non-verbal cues provided by the client around the problem area. Failure to handle sensitive topics (e.g. poor performance of a family member) tactfully and with patience can result in a consultancy contract being terminated. As a consequence, the consultant will discuss sensitive issues with a client differently to non-sensitive issues. For non-sensitive problems, the consultant can be direct. However, with a sensitive issue the consultant either waits for an opening or an opportunity to discuss the issue or he will "plant a seed" with the hope that it will germinate over time. This is often done by leading the client or inferring that there is a problem, but not specifically citing what the problem is. The consultant pointed out however, that "the better you know a client, to a degree, the more brutal you can be and get away with it". As such, building strong rapport with a client allows the consultant to be more direct about the issues facing the business. Often with clients he knows well, the consultant will say something like "you're not going to like hearing this from me, but …", or "Do you really want to hear the truth?". And then he would specify what the sensitive problem was.

During the problem resolution phase of the visit, the consultant may identify problem areas that he thinks will improve the client's business, that are **not of interest** to the client. The consultant feels obliged to explain the importance of these problem areas to the client and the impact they have on the productivity and profitability of the business. He tells the client that whether or not they address these issues is their call because it is their business. He does this because he has the client's best interest at heart. He also does it because he is protecting his reputation. He does not want a client to come back to him and say, why did you not tell me this area was an important problem for my business. To **protect his reputation**, he makes sure his clients are aware of all of the problems (or opportunities) confronting their business. This highlights that diagnosis is also a process of **negotiation** where the consultant negotiates with the client which problems (or opportunities) he will help address. This is why the consultant stressed that it is important that he understands what the client wants and that he monitors his verbal and non-verbal communication to ensure that he identifies what the client in interested in and not interested in. Cerf and Magne (2007) discuss the negotiation that occurs between a consultant and a farmer in terms of developing a joint understanding of the problem and this is similar to what is happening during the problem resolution phase of the visit. The consultant sets out his diagnosis and the reasoning behind this and then during the discussion, the client and consultant "negotiate" a joint understanding of the problems confronting the client's business. This "**negotiation**" process is another important skill that a novice consultant needs to develop.

4.3.3.3.2.4 Determine, analyse and select between alternative solutions

The nature of the pilot study limited the amount of information collected on how the consultant determined, analysed and selected between alternative solutions for the problems he identified on a client's farm. As with the diagnostic process, classification played an important role in the development of a solution for the client. The consultant reduced the size of his solution set using some high level classification procedures. For example, he classified the client in terms of his interest in strategic and/or tactical issues. This could limit the solutions that the consultant considered. Similarly, as shown in Figure 27, the consultant classified problems in terms of knowledge gaps, attitude problems or problems related to the prevailing social norms. The nature of the solution would then depend upon how the problem was classified. For the former he must improve the client's knowledge, for the latter two problem types, he must either change their attitude or convince them to go against the prevailing social norms. These high level problem classification schema have not been reported previously in the literature.

For problems that were classified as knowledge gap problems, once the consultant has determined the nature of the problem and its cause, he classifies the problem. For each problem type, he has a set of solutions that he could draw on to solve the problem (Figure 29). These solutions may involve a change to the client's management practices, the introduction of new technology, an improvement in either physical resources or infra-structure and so-on. Each set of solutions has a set of attributes (capital, labour, cash flow requirements, level of risk etc.) and the consultant uses information he has collected about the client's goals, preferences and constraints to screen the solution set and choose the solution that best matches the client's situation. This is the process of tailoring a solution to the client's situation. For example, the consultant wanted the client to

adopt formal feed monitoring to help improve his grazing management. The client did not want to spend time on this process, so the consultant changed the solution so that the client did not have to undertake formal monitoring. Similarly, if the consultant identifies that the problem confronting the client is that he is not harvesting sufficient dry matter per hectare and one of the solutions is to install drainage because of a wet soils problem. If the client has high debt levels, the consultant may screen out the drainage option because of its high capital requirements. This process is similar to that described in other studies (Rogers *et al*., 1996b; Gray *et al*., 1999a,b, 2000; Bruce, 2013). Gray *et al*. (1999b) reported that the consultants in their study had a set of solutions for each problem area. They found that the consultants in their study used constraints (e.g. goals and objectives, management capability (knowledge and skills), attitudes and beliefs, resource constraints and family constraints) to screen the consultant's large set of solutions to a smaller set of "feasible" solutions which were then presented to the client. The consultants in Gray *et al*.'s (1999b) study then discussed these with the client to determine the final solution.

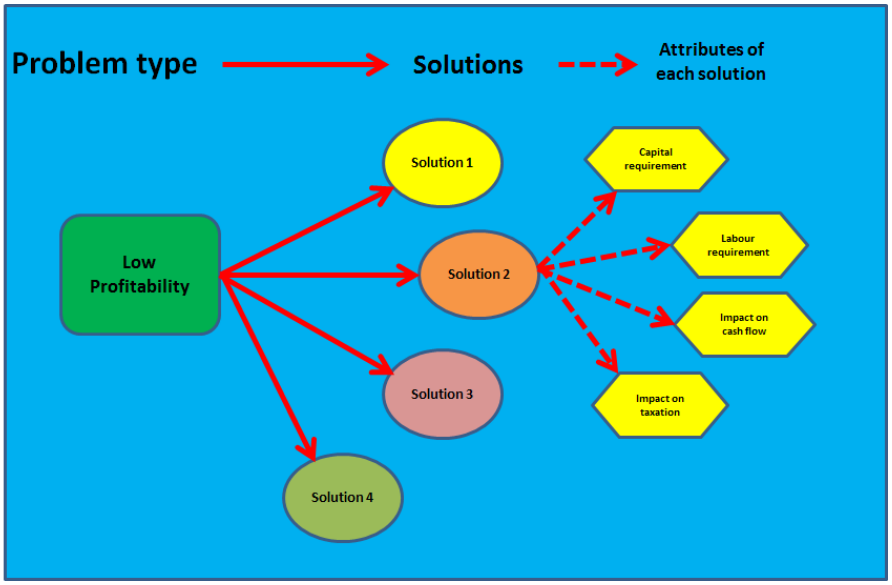


Figure 29 The link between problem type and solutions

The process used by this consultant to tailor solutions to a client is similar to the "elimination by aspect" theory proposed by Tversky (1972) and later adapted by Gladwin (1976) to explain farmer decision making (Rogers *et al*., 1996b; Gray *et al*., 1999b). Gladwin (1976) postulated that a decision maker uses a two-stage process to choose a solution from a large set of possible solutions. In the first stage, which is thought to be subconscious, the decision maker reduces a large set of possible solutions down to a smaller set of feasible solutions by ensuring the alternatives meet a set of criteria or "aspects", hence the term elimination by aspect proposed by Tversky (1972). Each alternative can be considered as a set of characteristics or aspects (Gladwin, 1976). In the second phase, which is a conscious decision, the decision maker ranks the alternatives in relation to the most important aspect (e.g. profitability) and then the highest ranking alternative is passed through the remaining set of aspects (or constraints) (e.g. risk, labour, capital and cash flow requirements etc.). If the alternative passes through all the other aspects (or constraints) it is accepted. However, if it does not pass, then the next best alternative is tested and so-on.

During the analysis of alternative solutions the consultant stressed that he must have a holistic understanding of the impact of the change on the farming system, a point made in other studies of farm management consultants (e.g. Rogers *et al*., 1996b; Gray *et al*., 1999b). He believes that this is a key skill for a farm management consultant. Similarly, the main criterion the consultant uses to assess if a change to the client's system is worthwhile is its impact on the profitability of the farm business. This is a key criterion when screening possible solutions. To do this well, a consultant has to be very analytical and understand the key drivers of farming systems profitability. The consultant believes this is a key skill for a trainee consultant. Alternatively, if a client wants to make a change for reasons other than profit (e.g. lifestyle or environmental impacts) that will impact negatively on the business; the consultant believes that he has an ethical duty to identify to the client, the cost to the farm business of that change in terms of lower levels of profitability.

The consultant in this study also discussed his diagnosis and possible solutions with his clients, a point also made in other studies (e.g. Rogers *et al*., 1996b; Gray *et al*., 1999b; Bruce, 2013). He mentioned that he reinforced his main points with the client and also highlighted how such changes could "add value" to the client's business. The consultant stressed that he has an opinion about where the business can be improved and the client also has an opinion. As such, there is a process of negotiation around the problem and the possible solutions. Nikolova *et al*. (2009) discussed the importance of this negotiation process in management consultancy. An important part of the discussion is to obtain client "buy-in" to the consultant's view that this is an area where the business can be improved. The consultant also brings in a "third person reference" to make a case for the change. This could be a research article or information provided by a recognised expert in the dairy sector. The consultant also identifies improvements that can be made to the business that the client is not interested in. Again, this is because the consultant believes that he has an ethical duty to identify such options to the client even if he will not implement them.

During this phase of the problem solving process, the consultant stressed that he had to ensure that the client's "expectations" about a possible change to the farm system are clear and line up with reality. The consultant must ensure that the client does not have false expectations about the impact of a possible change to his system that he is considering. This is part of the consultant's professional approach, his personal integrity that he must at all times, have the client's best interests at heart. Nikolova *et al*. (2009, p. 296) argued that successful consulting projects in the management consultancy area "require continuous social processes of negotiating mutual expectations and developing shared understanding and identities". Importantly, they distinguished between process and outcome expectations. The former was about the way in which the client and consultant were supposed to interact with one another, including how the consultancy problem was constructed. In contrast, outcome expectations are about the outcomes the client and consultant expect to occur as a result of the consultancy process. The consultant stressed the latter, but no data was collected on the former.

4.3.3.3.2.5 Plan implementation

Once a problem has been identified and verified with the client, the consultant will then suggest a programme of activities that the client might put in place to improve the farming system. For the example, if the problem is in relation to pasture dry matter harvested, the consultant may recommend the development of a regrassing programme and a number of other changes to the client's grazing management. Alternatively, if the issue is low profitability, he might recommend that he take the client's accounts away and analyse them, ask the client to place his accounts on Dairybase and then look at the factors influencing the cost of milk production and pasture dry matter harvested, key drivers of profitability, over the next few visits. In this latter case, the client has yet to develop firm solutions for improving the profitability of the client's business, these will be developed over time. As such, the consultant in this study, unlike those in other studies (Rogers *et al*., 1996a,b; Gray *et al*., 1999a,b, 2000) does not always have clear solutions for a client by the end of the first consultancy visit. The consultant in the study by Bruce (2013) also took several visits to develop solutions to an enterprise mix problem on a client's property. This was because the consultant had to undertake analysis of the client's farming system back in the office before returning with possible solutions.

4.3.3.3.2.6 Implementation

The consultant works with the client on plan implementation and because he is visiting most clients every 1 – 2 months, he provides them with good support during the implementation phase. Similar findings were reported in other studies (Rogers *et al*., 1996a,b; Gray *et al*., 1999a,b, 2000; Bruce, 2013). Limited information was collected on this stage of the problem solving process due to the time constraints imposed by the pilot study.

4.3.3.3.2.7 Evaluation

Because of the time constraints of the pilot study, little information was collected on the evaluation process that the client undertakes after a visit.

4.4 Planning process

Most of the farm management consultancy literature (Rogers *et al*., 1996a,b; Gray *et al*., 1999a,b, 2000; Bruce, 2013) has considered the consultancy process from a problem solving perspective. However, the consultant in this study also talks about planning the consultancy visit, so there may be advantages in considering consultancy from a management perspective that includes planning, implementation and control (Gray, 2005a,b). The planning process is relatively straight forward in that the consultant plans out the structure of his visit based on a well-rehearsed script (Beach, 1997) that is drawn from memory. Normally upon arrival at the farm, he greets the clients and then undertakes a period of ice-breaking conversation that normally occurs in the kitchen. He then undertakes a period of preliminary discussion where he collects information about the farm and farm family. After this, he undertakes a farm inspection which is followed by a

discussion, normally back at the house around problem resolution. This is in effect what Gray (2005a,b) calls a predictive schedule for a plan. It is the set of activities the consultant undertakes to achieve the goals set out for the planning period. Normally a plan has a planning horizon (Gray, 2001) and for a consultancy visit, the planning horizon is a half day.

A plan also has a goal and a set of targets (Gray, 2005a,b). The consultant has several goals for the consultancy visit. A key goals is that he identify and diagnose the problems (or opportunities) facing the client's business and solve these for the benefit of the client. He also seeks to further build rapport with the client such that their business relationship is on-going. The consultant also had goals that he set out to achieve during each phase of the consultancy visit. For example, by the end of the ice-breaking phase of the visit, he wanted the client to be relaxed and comfortable. During the preliminary discussion phase, he wanted to build up a picture of the client, farm family and farm system, to make sense of what was happening (Klein, 2009.) The consultant also wants to build a picture of where the client wants to be in the future. The consultant has two main objectives during the farm inspection. The first is to collect basic information to help "build a picture" of the farming system. This will include collecting information that will help him clarify the client's goals and objectives. The second objective is to collect information about the issues or areas that the client wants him to investigate. The consultant will also aim to collect information about other issues he has identified as potential problem areas for the client. These issues were either identified through the consultant's benchmarking process, are district or area issues inferred from the farm's location or they are seasonal issues specific to that time of year. By the end of the farm inspection the consultant will have identified opportunities for the client in line with his goals and objectives and in relation to the issues he wanted help with. The consultant will have also identified other opportunities that are different from the issues where the client wanted help. During the problem resolution phase, the consultant will have developed shared understanding with the client about his key problems, he will have developed solutions to these problems with the client and set out a plan to implement those solutions.

Limited information was obtained about the targets (Gray, 2005a,b) the consultant uses to control the implementation of his consultancy visit plan. Similarly, little information was obtained about the contingency plans (Gray, 2005a,b) the consultant uses to cope with uncertainty during a visit, or the sources of risk these contingencies are designed to cope with. This could be an interesting area for future research.

Because this planning aspect emerged from the data post-analysis, insufficient data was collected to identify the targets and contingencies that the consultant develops for his plan and uses for control purposes (Gray, 2005a,b). Similarly, little information was captured on the control process and what the consultant monitors (a critical activity according to Hacker (2001)) to manage the implementation of his consultancy plan. The data identified that the consultant is monitoring body language, the congruence between the spoken word and non-verbal communication. This information was used to assess the client's interest in particular problem types. Other studies (Williams *et al*., 1997a,b; Kemp *et al*., 2000) have identified that consultants monitor these factors during a visit, but from a personal communication perspective rather than a management control perspective. The consultant is also monitoring his data collection process and assessing if he has collected sufficient information for problem solving. This suggests he has a mental checklist against which he is comparing his actual data gathering process. Research into the control process used by a consultant may prove to be a useful area for further research. The next section discusses the role the consultant's networks play in his learning.

4.5 The role of social networks and social capital in knowledge exchanges

Results emerged from this study to show how the consultant used his networks and the social capital associated with these networks for knowledge exchange or learning. Given the focus of this study was to understand how an expert farm management consultant solved problems for a new client so that this knowledge could be passed on to a novice, this section reports on how the consultant uses his networks for learning. Because this area emerged from the study and was not part of the initial literature review, the first part of this section provides a theoretical underpinning of the area and then the results of the study are reported and compared with the literature.

With the privatisation of government extension services, there has been concern voiced by a number of authors about the capacity of advisory systems to incorporate the latest insights from science to optimise advisors knowledge (Leeuwis, 2000; Klerkx *et al*., 2006). Such knowledge is critical if they are to support farmers effectively in their decision making (Klerkx and Proctor, 2013). Klerkx and Proctor (2013) argue that advisors must constantly develop and optimise their knowledge both in terms of subject matter knowledge and advisory techniques in order to meet the changing needs of their farmer clients. Privatisation, in combination

with the increased and diversified demand for different types of advice has created a pluralistic advisory system (Klerkx and Proctor, 2013). Research has also suggested that privatisation has reduced the information exchange between advisors due to competition and weakened the linkages between advisors and the scientific community (Leeuwis, 2000; Klerkx *et al*., 2006), that is the advisory system has become more fragmented and disconnected. Some authors (Oreszczyn *et al*., 2010; Klerkx and Proctor, 2013) have argued that to overcome these problems (pluralism, assumed fragmentation and disconnect), there is a need for informal networking because the central coordination provided by government extension organisations has been removed. However, as Klerkx and Proctor (2013) point out, there has been limited research in this area.

Klerkx and Proctor (2013), drawing on the work of Lundvall and Johnson (2006) specified that there were four types of knowledge in advisory services: 1) Know-what, 2) Know-why, 3) know-how and 4) know-who. Know-what knowledge is about facts whereas know-why knowledge is about scientific knowledge in relation to laws and principles. Know-how knowledge relates to skills and reflects an individual's capability to undertake tasks on a practical level. Know-who knowledge is about specific and selective social relations. It is knowledge about who knows what and who can do what. Lundvall and Johnson (2006) argued that it could be more important than know-why knowledge.

Knowledge can also be classified into three categories: 1) explicit or codified, 2) tacit and 3) potential (Scharmer, 2001). Explicit or codified knowledge (know-what and know-why) can be described as "standardised knowledge which can be systematised, written, stored and transferred" (Klerkx and Proctor, 2013, p. 15). In contrast, tacit knowledge is described as "implicit, local, context dependent, inherently intangible and results from talents, experience and abilities" (Klerkx and Proctor, 2013, p. 15). Potential knowledge is new knowledge generated by science that might be incorporated into practice (Smedlund, 2008). The different forms of knowledge are complementary and through different interactions, they may transform into another form (Klerkx and Proctor, 2013). Scharmer (2001) argued that the different forms of knowledge are based on different epistemological assumptions and require different knowledge environments to support them. Based on Scharmer's (2001) work, Smedlund (2008) suggested that there are three different types of

social capital required to leverage competencies related to these three categories of knowledge in relation to a knowledge intensive business service (KIBS) firm (Figure 30). He argued that there is social capital that leverages competencies related to potential knowledge to create new knowledge or innovations that result in new businesses. Then there is social capital that leverages competencies related to tacit knowledge to transfer knowledge that is used to improve the current business. Finally, there is social capital that leverages codified or explicit knowledge to implement knowledge and improve operational effectiveness.

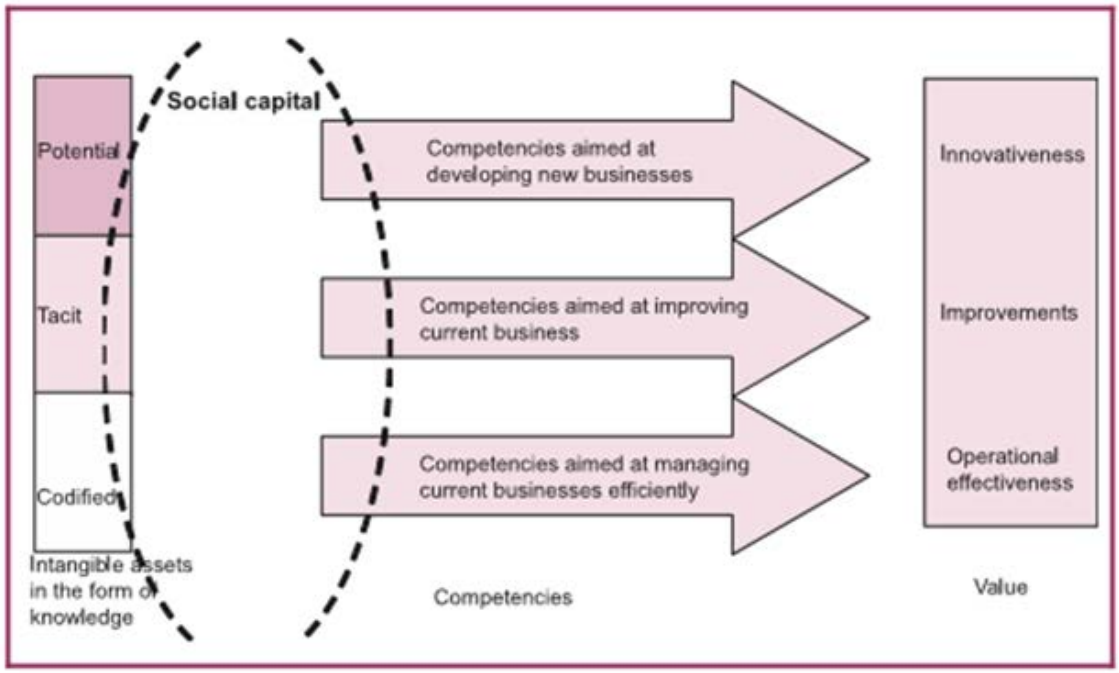


Figure 30 Social capital as a value driver in a firm (Source: Smedlund, 2008)

Klerkx and Proctor (2013) drew on the work of Smeglund (2008), which focused on knowledge intensive business service (KIBS) firms, which they believe advisory firms are a case of, to look at the knowledge exchange interfaces that are used by advisors in the English land management advisory system. They believe that the KIBS literature provides a useful framework for understanding how advisors obtain knowledge. In their study, Klerkx and Proctor (2013) defined professions are "communities of independent professionals who share a core competence and have a shared epistemological culture i.e. a set of norms, values and practices that binds the community together" (p. 15). They believe that for advisors to meet the emerging needs of clients due to changes in the operating environment, advisors must obtain suitable knowledge. Drawing on the KIBS literature, they identified different ways in which advisors could optimise their expertise and advisory skills. Klerkx and Proctor (2013) identified four mechanisms by which advisors could improve their knowledge. These were through 1) knowledge exchange amongst advisors within the firm including searchable data-bases, in-house training and face-to-face formal and informal exchanges, and team work for a client or assignment; 2) knowledge exchange with clients; 3) interactions with advisors from different firms through joint or shared assignments, or through formally orchestrated exchanges organised by a professional body, and 4) direct interactions with researchers.

Klerkx and Proctor (2013) also identified risks or barriers to knowledge exchange through these different interfaces. This included an over-reliance on ICT at the expense of face-to-face interactions, the epistemological culture of a profession that binds the advisors together and provides them with a professional identity may limit learning due to "group think". Similarly, established organisational practices, resources and strategies may constrain learning and innovation. They postulated that time constraints in terms of billable hours and moving outside one's professional role may also limit knowledge exchange.

Drawing on the work of Smeglund (2008), Klerkx and Proctor (2013, p.15) argued that "the different types of knowledge exchange interfaces and the know-who of advisors can be seen as the social capital which enables optimisation of expertise and advisory skills". The term social capital was introduced by social economists and the concept links inter-personal social relationships to the creation of economic value (Smeglund, 2008). As such, from a social capital perspective, social relationships are seen to have value (Putnam, 2000). One can have both positive and negative social capital (Portes, 1998) and social capital like other types of assets requires maintenance (Smeglund, 2008). Smeglund (2008) also argued that the emergent and systemic nature of social capital confuses scholars. For example, trust can be a source and an outcome of social capital. Smeglund (2008) argues that this confusion can be reduced by dividing the concept into sources, mechanisms and outcomes (Ruuskanen, 2004; Ruuskanen and Kankainen, 2011) or sources, definitions and consequences as suggested by Portes (1998).

Based on a review of literature, Adler and Kwon (2000) argued that the sources of social capital comprised social networks, norms and beliefs, although Putnam (1993) also included trust. Smeglund (2008) in his paper, adopted the view proposed by Adler and Kwon (2000). Smeglund (2008) argues that social networks are the most important source of social capital because social capital is believed to be found in the relationships between individuals. Norms of reciprocity are important sources of social capital (Portes, 1998). This is because an individual provides access to resources to another with the expectation that this will be reciprocated in the future (Portes, 1998). Beliefs are also an important source of social capital (Adler and Kwon, 2000). Smeglund (2008) stated that beliefs come in the form of a shared vision, and common interpretations and meanings. He argued that social capital would struggle to exist among people who do not understand each other's motives. Individuals will tend not to cooperate if they do not have common objectives and motivations (Smeglund, 2008). As such, shared beliefs are an important source of social capital and ensure individuals are aiming for the same goal (Smeglund, 2008). Nahapiet and Ghoshal (1998) separated social capital into structural, cognitive and relational dimensions. The structural dimension comprised network ties, network configuration and appropriate social organisation. In effect, this is similar to Adler and Kwon's (2000) social networks. The cognitive dimension comprises shared language and codes and shared narratives (myths, stories and metaphors) which are similar to Adler and Kwon's (2000) beliefs. The relational dimensions comprise trust, norms, obligations and expectations, and identification. This extends Adler and Kwon's (2000) source that they have called norms. Nahapiet and Ghoshal (1998) drew on Misztal's (1996, p. 9) definition of trust which was the belief that the "results of somebody's intended action will be appropriate from our point of view". They also draw on the work of Mishira (1996) who suggested that trust is multi-dimensional and indicates an individual's willingness to place themselves in a vulnerable position in relation to another person. This willingness arises because the individual holds four important beliefs about the individual they trust. These are beliefs in: 1) their good intent and concern, 2) their competence and capability, 3) their reliability and 4) their perceived openness.

When considering how social capital assists knowledge exchange amongst advisors, three types of social capital are highlighted in the literature: bonding, bridging and linking social capital (Klerkx and Proctor, 2013).

Klerkx and Proctor (2013, p. 16) described bonding social capital as "the trusting and cooperative relationships between members of a network who are similar in a socio-demographic sense, with thick trust, dense multiple networks with strong ties, generally informal collaboration and long-term reciprocity". Bridging social capital was described as "the links between separated dense networks for collaboration and coordination, characterised by larger and looser networks with weaker ties, more formalised collaboration and thinner trust" (Klerkx and Proctor, 2013, p. 16). Finally, linking social capital was described as "the norms of respect and networks of trusting relationships between people who are interacting across explicit, formal, or institutionalised power or authority gradients in society" (Klerkx and Proctor, 2013, p. 16). In contrast to bonding social capital, the interactions related to linking social capital are between groups that are different in a social-demographic sense.

Klerkx and Proctor (2013) then drew on the work of Smeglund (2008) who linked the different types of social capital to a typology of network types: centralised, distributed, and decentralised. Smedlund (2008) argued that to develop different types of knowledge (explicit, tacit and potential), actors in KIBS firms use different network types. For example, Smeglund (2008) proposed that actors in such firms would use a decentralised network structure (Figure 31) to obtain potential knowledge. This type of network involves connections with actors outside an individual's normal CoP and NoP and this allows them to access previously unknown sources of knowledge (Klerkx and Proctor, 2013). Such networks allow individuals to obtain ideas that would not be available from their established CoP or NoP. Smeglund (2008) argued that when new knowledge is created in a decentralised network, the belief in innovation has to be strong (Figure 31). Actors in this network believe that innovativeness is rewarded and there are myths about successful innovations. Such innovation requires liberal social norms such as actors not being punished for failure, freedom to try new things and fail, and a focus on the future, not the past (Figure 31). Smeglund (2008) argues that decentralised networks are in constant flux and that relationships are often short-term and asymmetric. As such, relationships in the network require "fast" trust (i.e. actors engage in short-term relationships at short notice), and the trust is thin and fragile (Figure 31). Such trust is based on the performance of the actors. Smeglund (2008) believes that the trust found in Silicon Valley is similar to the concept of fast trust. It is not based on a common history, but on the reputation of the actors. He stated that trust is based on performance not personality and this permits "outsiders" to join the network allowing the formation of heterogeneous networks.

	Social capital for potential knowledge	
Social network structure		Decentralized structure (Barabási, 2002).
Beliefs	The belief that innovation is needed. The belief that innovativeness is rewarded. Myths about successful innovations.	
Norms	No punishments for failure. Acceptance of mistakes. The freedom to try things and fail. 'Forget the past and concentrate on the future' mindset.	
Trust	Fast trust. Thin and fragile. Enables and initiates a relationship. Creates interest. Short-term affairs.	

Figure 31 Social capital for potential knowledge is decentralised (Source: Smeglund, 2008)

Klerkx and Proctor (2013) believed that decentralised networks would allow advisors to develop new advisory services. They argued that such insights often occur at the boundaries of Cop's or NoP's through weak ties (Granovetter, 1973) with other networks and that these new insights would allow advisors to develop new services. They cited the work of Fosstenlokken *et al*. (2003) who reported that new clients and contact with researchers or recent graduates[5] may provide advisors with new insights. Interestingly, Klerkx and Proctor (2013) believe that because such decentralised networks involve contact with individuals outside an advisor's established CoP and NoP, differences in culture, language and work procedures may create barriers and as such individuals or organisations who play the role of "boundary spanners" (see Klerkx *et al*., 2010) or innovation brokers (see Klerkx *et al*., 2009) are required to exploit the weak ties and create linking social

[5] These new graduates have knowledge of the latest scientific knowledge from their studies.

capital. Granovetter (1973, p. 1361) stated that "the strength of a tie is a combination of the amount of time, the emotional intensity, the intimacy (mutual confiding), and the reciprocal services which characterize the tie".

Smeglund, (2008) argued that in contrast to potential knowledge, social capital for tacit knowledge exchange requires a distributed network (Figure 32). This network does not have weak links or structural holes. Rather, every actor in the network is connected to a couple of other actors with strong links. This structure is best used in situations where tacit or experience-based knowledge (Know-how) is shared in a trustworthy and stable environment. Such a dense structure creates trust and commitment which facilitates knowledge exchange (Smeglund, 2008). Smeglund (2008) suggests these structures resemble a community of practice (Brown and Duguid, 1991) that has strong internal social capital but only a few external links. As a CoP develops, it creates its own values and shared meanings that form a boundary around the group and define who is inside and therefore who is outside the community (Edelman *et al*., 2002). As such, it can exclude new sources of knowledge that come in from outside the boundary of the social network, what Edelman *et al*. (2002) describes as the negative or "*dark side*" of social capital.

Smeglund (2008) argues that the beliefs associated with a distributed network are "noble" and include life-long learning and personal growth. Similarly, the myths in this network type are about successful service and helping others (Figure 32). Norms of reciprocity are self-enforced by the community of practice in a distributed network (Smedlund, 2008) (Figure 32). In such networks the other norms are that each member has to contribute, there are unwritten rules and there are social sanctions for those members who break the rules (Smeglund, 2008) (Figure 32). In such communities, the dense network structure is a source of general reciprocity (Smeglund, 2008). Portes (1998) compared general reciprocity with economic exchange and highlighted some key differences. First, the currency in which the obligation is repaid by one individual to another may be different from that which was used when an initial favour was undertaken. Second, the timing of repayment of the obligation is not specified when the initial favour is given. Smeglund (2008) states that in distributed networks, emphasis is placed on the goodwill that individuals have towards each other. The incremental and dense trust that develops in such networks makes the relationships between individuals more durable (Smeglund, 2008) (Figure 32). The type of trust in this type of network was described as "enforceable" by Portes (1998). If a member of the community fails to meet their obligations, they will be sanctioned by the community. Smeglund (2008) drawing on the work of Boisot (1995) highlighted the role that trust played in the transfer of tacit knowledge. Boisot (1995, p. 153) stated that "When a message is uncodified [tacit knowledge], trust has to reside in the quality of the personal relationship that binds the parties through shared values and expectations rather than the intrinsic plausibility of the message". Smeglund (2008) believed that an example of this kind of network was the Jewish diamond market in New York. Although the diamond merchants are in competition, to speed up the sale of diamonds, the merchants undertake transactions without unwieldy legal contracts. If a merchant violates the rules around this process, the community sanctions them and they are expelled.

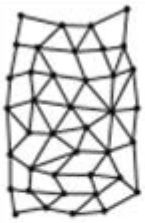
	Social capital for tacit knowledge	
Social network structure		Distributed structure (Barabási, 2002).
Beliefs	Beliefs in lifelong learning and personal growth. Myths about successful service and helping others.	
Norms	Reciprocity; everybody has to contribute. Unwritten rules. Social sanctions for those who break the rules.	
Trust	Incremental and dense trust makes relationships more durable. Enables risk and adaptation. Enforceable trust.	

Figure 32 Social capital for tacit knowledge is distributed (Source: Smeglund, 2008)

Klerkx and Proctor (2013) compared a distributed network to a community of practice (CoP) that comprised of individuals from the same profession and that over time develops its own meanings and values. They believed that in such communities, there is a lot of bonding social capital and that a considerable amount of tacit

knowledge exchange occurs. In such communities, advisors can draw on the experience of their peers to identify solutions to complex problems faced by their clients and this may be done through formal or informal meetings (Klerkx and Proctor, 2013). Klerkx and Proctor (2013) also stated that where a distributed network has a looser structure, it could be compared to a network of practice (NoP) that comprises of advisors from different professions (e.g. Applied ecologists, veterinarians, land surveyors, lawyers etc.). Such a structure has looser ties than a CoP and it is based on bridging, not bonding social capital (Klerkx and Proctor, 2013). These actors may not know each other well, but Klerkx and Proctor (2013) argued that they would share common activities and culture and would be capable of exchanging knowledge and identity. Often these actors are linked by a shared problem or a client (Klerkx and Proctor, 2013). The knowledge obtained from distributed networks is often used to help individuals solve more complicated problems that they have not dealt with previously and in which know-how is important (Smeglund, 2008). Such problems often require the recombination of existing knowledge (Klerkx and Proctor, 2013).

The third archetype social network structure is the centralised structure (Smeglund, 2008) (Figure 33). Such a network is formed around what Smeglund (2008) calls a "focal actor" who has strong links to other actors, but the other actors are not linked to each other (Figure 33). Smeglund (2008) argues that this structure is optimal for the exchange of codified or explicit knowledge because such a structure allows knowledge exchange to happen in an efficient and pre-determined manner. In this network, the beliefs focus around the idea that high quality and discipline are required for success (Smeglund, 2008) (Figure 33). Smeglund (2008) provides an example of this network structure in relation to the Japanese work culture and hierarchical structures. Future-oriented stories and myths are linked to this structure such as those about individuals from a range of backgrounds that have become extremely wealthy through hard work. The norms in such a structure are clear and explicit rules that are enforced through harsh and immediate sanctions (Smeglund, 2008) (Figure 33). Trust in the centralised social network is based on clearly defined roles and the hierarchical relationships, the individuals in the network trust the hierarchy. In such a network it is important that the actors feel that all the members of the network play by the rules. An individual's obedience to authority is a means to achieving material and spiritual security (Smeglund, 2008) (Figure 33). Smeglund (2008) suggested that Japanese manufacturing provided a good example of this type of network where a strong manager is in charge of obedient staff who are driven by a strong Japanese work ethic and a fear of losing face in front of their manager.

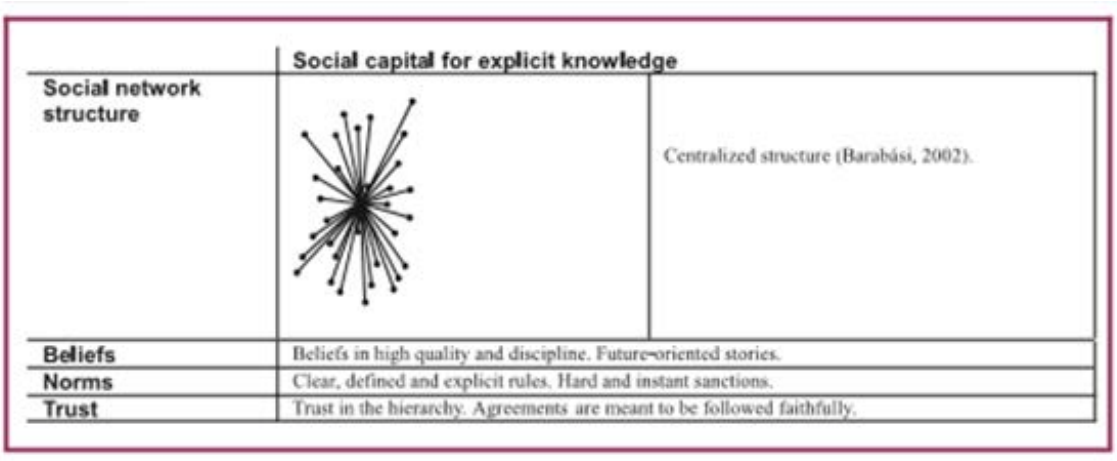


Figure 33 Social capital for codified or explicit knowledge is centralised (Source: Smeglund, 2008)

Klerkx and Proctor (2013) applied Smeglund's (2008) concept of a centralised network as appropriate for fostering the efficient exchange of explicit knowledge (know-what and know-why). However, they modified this and rather than having a "focal actor" as the source of knowledge in a firm, they replaced the focal actor with an ICT based database that would contain the explicit knowledge advisors required. They argued that such databases would be suitable for maintaining adequate knowledge for routine problem solving of common problems that have a well-known solution space. Klerkx and Proctor (2013) argued that in such a network, social capital is essentially absent. This is because the advisors are sourcing knowledge through a machine, not a "focal actor". They will use the database to access standardised solutions to a client's query for areas of routine advice.

Klerkx and Proctor (2013) undertook a study of advisors networks in relation to land management in England in relation to veterinarians, applied ecologists and land agents/surveyors to test the applicability of the

Smeglund's (2008) framework. They found that these advisors were always working within wider networks which they accessed to obtain knowledge. Klerkx and Proctor (2013) reported that the advisors used the three network types identified by Smeglund (2008) to access knowledge that they required to provide an effective advisory service to their clients. Importantly, they found the different advisor types drew on the different networks types to different degrees. For example, the veterinarians drew on decentralised networks more than the applied ecologists or the land agents/surveyors. The other important finding was that there was considerable overlap between the three networks.

In terms of centralised networks, Klerkx and Proctor (2013) found that the advisors relied to some extent on central databases, books, journals and magazines to update their scientific and regulatory knowledge. Professional associations were important sources of explicit knowledge through journals and other official documents that synthesise and filtered the latest research, regulations and policy for their members. Electronic resources on the internet were also utilised by advisors to obtain explicit knowledge although many of the advisors complained about the time taken to access such information whether through the internet or internal within-firm data-bases. Klerkx and Proctor (2013) found that centralised networks were used mainly for keeping up-to-date on recent developments rather than for routine problem solving as was proposed by Smeglund (2008). Because of the reliance on electronic and document sources, social capital plays a minimal role in the centralised networks of the advisors in Klerkx and Proctor's (2013) study.

In contrast to centralised networks, Klerkx and Proctor (2013) found that social capital played a much more important role in distributed and decentralised networks. It was previously argued that KIBS firms used distributed networks to access tacit knowledge from peers, colleagues and clients to assist with complex problem solving (Smeglund, 2008; Klerkx and Proctor, 2013). In their study, Klerkx and Proctor (2013) found this to be the case, but they also found that advisors used their distributed networks to keep up-to-date on recent developments. They also identified that two types of distributed networks were important for this: professional networks and cross-professional networks. Professional networks occur at the firm, organisational and profession level. Knowledge exchange can range from informal face-to-face interactions at the firm, in work teams and through the mentoring of younger staff members. Knowledge was also exchanged between advisors working in different firms. Advisors also obtained knowledge through conferences, continuing professional development activities, and meetings at the local and regional levels. These events were important for linking advisors from different sections or regions in the same organisation and advisors from different organisations. Klerkx and Proctor (2013) stated that the links between advisors was strong in these professional networks and that they shared a common identity. In effect, they had formed communities of practice with strong bonding capital.

The other type of distributed network identified by Klerkx and Proctor (2013) was the cross-professional network. In this network, there was interaction between advisors from different professions (e.g. Applied ecologists, veterinarians, land surveyors, accountants, lawyers etc.). Interestingly, Klerkx and Proctor (2013) stated that little had been written about such networks in the literature. These networks were based on bridging social capital and because of the heterogeneous nature of the network; the advisors may not share a common professional identity. Rather, what linked these advisors together was a common client, problem or issue (Klerkx and Proctor, 2013). Such networks allowed the advisors to access new and different types of knowledge and expertise that they could not source from their CoP. Interactions may occur where a large multi-disciplinary firm brings a team together to work with a client or an advisor may bring together different types of advisors from different firms to work with a client. In the latter case, other advisors are brought in because the primary advisor does not have the expertise to deal with the problem. Klerkx and Proctor (2013) found that some key advisors were using their "know-who" knowledge and acting as network brokers. Two key advantages were identified from these interactions (Klerkx and Proctor, 2013). First, they broadened the knowledge of the advisors, and second, they allowed advisors to provide their client's with more comprehensive and integrative advice. Professional associations also played a role in facilitating networking opportunities both for CoP's and NoP's through branch and regional meetings and conferences (Klerkx and Proctor, 2013).

Klerkx and Proctor (2013) identified problems that occurred when advisors worked in multi-disciplinary teams. The first issue was conflicts of interest; the advisors had to ensure the advice provided to a client was always in their best interest. Other problems related to a lack of clarity around roles, not having a common language and a lack of openness towards other advisors professional codes of practice and epistemology. Klerkx and Proctor (2013) also identified a tension between collaboration and competition and issues to do with encroachment on another's professional territory. Advisors were found to protect their specialist knowledge and work to ensure they maintained a role within the extended networks. Examples were given of where a lawyer might encroach on a valuer's territory or conversely, an applied ecologist was reticent to share his professional knowledge with an agri-environment officer.

Klerkx and Proctor (2013) reported that decentralised networks were used by advisors to increase their knowledge and improve their ability to solve complex problems as suggested by Smeglund (2008). Interestingly, of the three advisor types (veterinarians, applied ecologists and land agents/surveyors), veterinarians were the group that stood out in terms of their use of academic and scientific contacts. For the three advisor types, these contacts were outside their normal CoP's and NoP's and contact was made through direct contact at conferences, events, meetings and through one-on-one contact via phone or email. Advisors from small firms were found to use these networks to increase their capacity, often at no cost (Klerkx and Proctor, 2013). The study also highlighted the importance of professional associations in facilitating scientist-advisor interactions (Klerkx and Proctor, 2013). They provided a formal platform from which their members could build, maintain and extend their decentralised social networks. Alternatively, Klerkx and Proctor (2013) reported that academics valued such interactions because it allowed them to forge links with the professions.

Importantly, although the interactions with academic and scientific contacts led to new insights, Klerkx and Proctor (2013) did not find any evidence of it leading to new types of advisory services or approaches, something they had expected to find after their synthesis of the literature. The found no evidence that advisors used their decentralised networks with the explicit intention of developing new advisory services or approaches. They postulate that encouraging linking social capital and broadening existing CoP's and NoP's could enhance the innovation capacity of the advisory profession. This is both from a subject matter perspective and from a service provision and advisory approach perspective. They believe that professional associations play an important role in encouraging linking social capital. This is because they are in a position to explicitly connect advisors to science. Klerkx and Proctor (2013) believe that this process could be further enhanced and that the role of broker between the science system and the advisory system is an important one. As such, professional associations could play a more proactive role in this area.

Klerkx and Proctor (2013, p. 22) also concluded that "the boundaries between centralised networks for routine problem solving and keeping up-to-date with subject area developments, distributed networks for complex problem solving, and decentralised networks for developing new services appear more blurred than theorised by Smedlund (2008)". The found that both decentralised and distributed networks are used for keeping up-to-date and for different types of problem solving. Klerkx and Proctor (2013) also believe that distributed networks provide value than centralised networks for the exchange of tacit knowledge. These networks (CoP's and NoP's) allow complex interactions to occur between advisors within and across professions. The former is based around bonding social capital and the latter on bridging social capital. Interestingly, Klerkx and Proctor (2013) do not mention the role of bridging social capital between clients and other non-client land managers as a source of tacit knowledge even though they have cited other studies (e.g. Fosstenlokken *et al*., 2003) that have reported this.

Importantly, Klerkx and Proctor (2013) found few barriers to knowledge exchange in their case study. Time requirements for knowledge acquisition did not appear to be a problem for the advisors in the study and there was not an over-reliance on ICT at the expense of face-to-face approaches. There were issues around epistemological differences and because of less "thick" trust associated with bridging capital (c.f. bonding capital), the validity and legitimacy of the knowledge of different types of advisors is sometimes open to question. In contrast to other studies such as those by Leeuwis (2000) that found that privatisation of extension has reduced the knowledge exchange that occurs between advisors, Klerkx and Proctor's (2013) study found that there was significant evidence of knowledge exchange both within and between advisory professions and that advisors were also actively referring clients to other advisors to ensure their clients received a coherent programme of advice. They found that for the advisory system they investigated, the interactions between actors had not collapsed and it did possess "considerable social capital" (2013, p. 23). Klerkx and Proctor (2013) did however find that competition and commercial interests influenced advisory behaviour and advisors sought to prevent encroachment into their professional territory by other professional groups. Advisors were actively working to prevent their professional identity becoming blurred.

A weakness of Klerkx and Proctor's (2013) study was that they could not specify the type and quality of the knowledge that was exchanged across the various networks. Nor did they investigate the link between networking and practice change on client's properties. That is, the extent to which networking improved the effectiveness of the advice provided by advisors. These are useful areas for future research.

This study identified that the consultant had five important networks that he used to obtain information, knowledge and resources. These were: 1) farmer clients, 2) non-client farmers, 3) farm management consultants, 4) other rural professionals and 5) scientists and academics (Figure 34). The network of farm management consultants is in effect the consultant's community of practice (CoP) (Brown and Duguid, 1991) whereas the network of other rural professionals is in effect a network of practice (NoP) (Klerkx and Proctor, 2013). Klerkx and Proctor (2013) have identified similar networks, except, they did not distinguish between

farmer clients and non-clients. The consultant used two of his networks to obtain resources in the form of "new client referrals" (Figure 34). He obtained these through his farmer client network and his network ofother rural professionals (NoP). Other studies (e.g. Klerkx and Proctor, 2013) have focused more on the flow of information and knowledge in advisory networks rather than resources and in particular referrals.

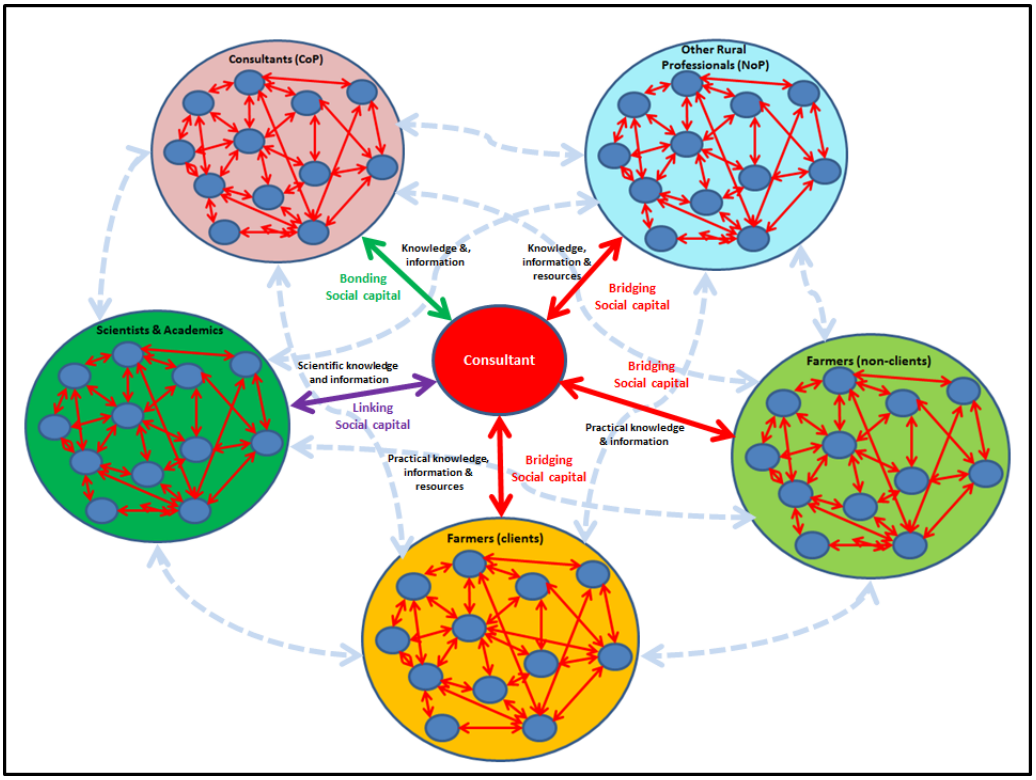


Figure 34 The role of networks and social capital in providing the consultant with access to information, knowledge and resources

In terms of knowledge exchange, the consultant highlighted that he used all five networks to obtain information and knowledge (Figure 34). These networks and the social capital associated with these could be classified into the types postulated by Smeglund (2008) and researched by Klerkx and Proctor (2013). Most of the networks the consultant operates in are distributed networks that are linked by either bonding or bridging social capital. This includes his network of work colleagues in his firm and peers in the farm management consultancy field, i.e. his community of practice that is linked by bonding social capital. It also includes his network of rural professionals with who he interacts with or his network of practice (NoP) that is linked by bridging social capital. These include rural bankers, veterinarians, fertiliser and seed reps, extension agents, valuers and rural appraisers, regional council staff, LIC staff, accountants, lawyers, and engineers. The consultant's farmer networks (client and non-client) are also distributed networks that are linked by bridging social capital. The consultant mentioned that he obtained useful information and knowledge from his CoP and NoP. He did identify that these networks for useful for providing him with information about what was happening in his district. Smeglund (2008) and Klerkx and Proctor (2013) had argued that such networks were important for the transfer of tacit knowledge (know-how) that could be used for complex problem solving. However, this was not mentioned by the consultant.

The consultant actively expands his NoP through his attendance at events (conferences and branch meetings of the Primary Industry Management Institute, Fonterra events, Awards dinners etc.) because this provides him with access to not only information and knowledge, but also members of his NoP will refer clients to him. The consultant also targets particular actors to expand his NoP in areas that are useful for his business. For instance, bankers provide useful information for the consultant's business and they are often a source of referrals. As such, the consultant will target events that are attended by bankers to expand his NoP. Klerkx and Proctor (2013) reported that advisors in the British advisory system would refer their clients to other advisors if it was in the client's best interest.

The consultant did mention the importance of his farmer networks in terms of obtaining tacit knowledge about practice or what he called practical knowledge (know-how) (Figure 34). He stated that he visits 60 – 70 farms

per year and as such he is exposed to a wide range of ideas in relation to farmer practice to the point that he considers himself a "broker of what other people do". As such, the consultant views his clients as an important source of tacit knowledge for problem solving. Klerkx and Proctor (2013) postulated that clients would be an important source of knowledge for advisors, but did not report on this in their study of land management advisors in England. Other researchers have identified clients as an important source of knowledge for advisors. Fosstenlokken *et al*. (2003) in a study of professional service firms across a range of industries in Norway found that client interaction was an important source of learning for the consultants in such firms (Figure 35, arrow 3). They found that across firms and industries both novice and expert service providers rated learning through project work with a client as their most important source of knowledge development. However, they stressed that interacting with the right kind of client was important in their knowledge development. The service providers in this study made the comment that it is much more beneficial from a knowledge development perspective to work with highly competent clients as opposed to clients with low competence. Sophisticated, knowledgable clients were considered a key source of knowledge for all the service providers interviewed in the study by Fosstenlokken *et al*. (2003). Such clients challenge a service provider professionally and this leads to new learning (Fosstenlokken *et al*., 2003). Such client's often trigger further learning, both by the individual service provider but also between the service provider and his peers because they may return to the office and discuss new and unanswered questions that have been raised by the client (Fosstenlokken *et al*., 2003). The consultant in this study also talked about targeting specific farmers as potential clients, both from a scale perspective (large or multiple farms), but also because they were progressive. Given the consultant considers he is a "broker of what other people do", such clients are an important source of knowledge for his business and for the dairy industry.

The consultant proactively developed a decentralised network with linking social capital to access scientific knowledge (Figure 34). These networks were with scientists and specialists from DairyNZ and AgResearch or academics from Massey and Lincoln universities. The consultant spent a lot of time developing and maintaining these networks. He was also proactive in the selection of actors that he wanted within his network. His criteria for the selection of individuals within his decentralised network were that they had to provide knowledge that was useful for his consultancy business and that they provided objective and unbiased information about key areas in dairying. The consultant also targeted actors in areas he was not particularly strong in (e.g. dairy nutrition) and he also targeted actors that were in emerging areas (e.g. environmental concerns around nutrient budgeting and nitrogen leaching). As such, the consultant's network was built around key people chosen on the basis of carefully thought out criteria, not organisations, a point made by Oreszczyn *et al*. (2010) in relation to farmer learning and the role of networks. In effect, the consultant was identifying the influencers (Oreszczyn *et al*., 2010) in the industry at the farm level. The consultant would meet these actors through attendance at conferences, seminars, workshops, and field days. He would approach them after a presentation and if possible organise a social occasion where they could interact (drinks or dinner). If they were in the consultant's home town he would make a point of going to their seminar or workshop and inviting them out for dinner afterwards. The consultant believed that by spending time with key actors he could build a strong relationship with them. This then allows him to ring these people at any time and ask them advice. The relationship is also reciprocal. If these actors contact him with a request, he will make sure he undertakes that request quickly. They then view this as a favour and this makes it more likely that they will return the favour in the future. The other way to build a relationship with a key resource person is by spending time with them. The consultant attends various events (conferences, field days, seminars etc.) to identify useful contacts that he can add to his network. He also noted that individuals within his network help him expand his networks. For example, he might be invited to a workshop because of his knowledge of farmer practice and through this meet other scientists or academics that he will "add" to his network.

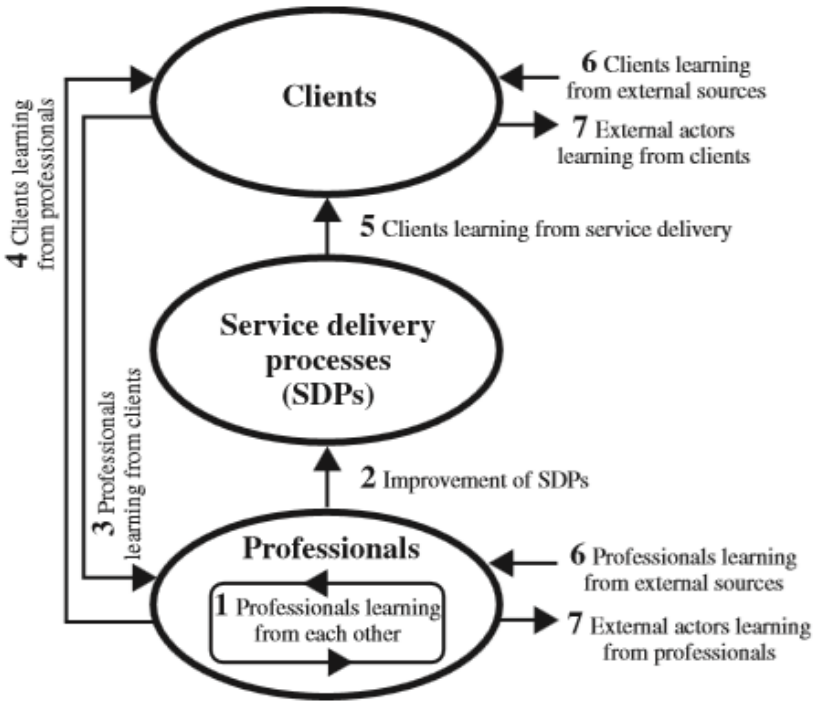


Figure 35 Learning through client interactions (Source: Fosstenlokken *et al*., 2003)

The consultant ranked the importance of actors within his decentralised network and this dictated the effort he put into maintaining such relationships. Although Klerkx and Proctor (2013) identified the importance of decentralised networks in providing advisors with new insights, they did not report that the advisors ranked the actors within their networks in terms of importance. The consultant's aim is to build a close relationship with the resource people in his decentralised networks and he works hard at achieving this. For high ranking actors he would put in considerable effort such as frequent contact, inviting them out for dinner, meeting them socially after a seminar and so-on. He also makes sure that if these contacts ask him for a "favour" that he undertakes it quickly and to a high standard. He will put less effort into his less important resource people. For example, with some of his contacts at the university, he may only visit them occasionally throughout the year to stay in touch. He will also provide favours for these people when asked. Actors within the consultant's decentralised network, provide him with access to other scientists and academics through introductions at events. Hence, the relationships he establishes help him further expand his network. The consultant estimated that he would spend about one hour per week working on expanding and maintaining his social networks. Other studies have described the importance of decentralised networks to advisors (Klerkx and Proctor, 2013) and KIBS staff (Smeglund, 2008), but few have reported on how they establish, expand and maintain such networks. The consultant believes that once he has developed a good relationship with a contact, it does not take a lot of effort to maintain it. Smeglund (2008) stated that social capital like other types of assets requires maintenance, but he did not report that once a good relationship is developed the input required to maintain it is reduced.

Most of the information and knowledge the consultant obtained from his decentralised network of scientists and academics was used to develop his subject matter expertise (Figure 34). Klerx and Proctor (2013) reported similar findings in their study of land management advisors in Britain. The consultant did draw on his decentralised network of scientists and academics to develop new services for his clients, something Klerkx and Proctor (2013) did not find with the advisors in their study. The service providers in Fosstenlokken *et al*. (2003) study of KIBS firms distinguished between knowledge development in their **subject matter** area (e.g. architecture) and knowledge development in relation to **service provision** and business operation, or their role as an **entrepreneur**. However, this distinction was not made by the consultant in this study, but this may reflect the "problem solving focus" of the investigation. However, the consultant had identified that nutrient management was an emerging area where his clients would require advice. As such, he used his contacts at the university to find out about the area and then undertook two university short-courses, one at the intermediate and another at an advanced level. This new knowledge then allowed him to provide his clients with a new service around nutrient budgeting and nutrient management advice.

Leading on from his comments about nutrient management, the consultant also stated that an important aspect of his role was to identify areas that he thinks will be important in the future and build networks in these areas. Examples of this are in the nutrient management area and in the climate change area, two issues that he expects will impact on his clients. For emerging issues, he must keep to the forefront in terms of knowledge which he does by developing links with scientific leaders and academics in these fields. One of the services that his clients value is that he keeps them informed of **emerging industry issues**. Knowledge of emerging issues can enhance his **reputation** particularly where he has identified that a particular issue is emerging and then several months later the client has had to deal with the issue. The client then knows that the consultant is knowledgeable in that area and he will then seek advice from him. Because his client's expect him to be knowledgeable about emerging industry issues, he must spend time developing knowledge in this area. Some of this will be done through his existing networks, but often he has to extend his networks into areas where he does not have the contacts. Interestingly, Oreszczyn *et al*. (2010) in a study of UK farmers' learning in relation to GM crops, concluded that none of the organisations involved with the farmers in the study were adequately thinking ahead from the farmers' perspective about what new technological futures might occur and what these might mean for farmers in terms of their practice.

The consultant did not discuss his use of in-house databases as reported by Klerkx and Proctor (2013) for the exchange of explicit knowledge, but he did mention that DairyNZ had a database on their website where he could obtain fact sheets on a broad range of topic areas. The consultant used a wide range of resources including the DairyNZ database, field days, workshops and so-on to keep up to date. However, he did not rely solely on decentralised networks for this purpose, a point also highlight by Klerkx and Proctor (2013) in their study of UK advisors.

In relation to training novice consultants, the consultant stressed that it is critical for them to develop a network of resource people. If they do not do this, they will find consultancy quite difficult. He believed that novice consultants would struggle until they have developed such networks. The consultant identified a possible barrier to a novice consultant developing suitable networks was ensuring that the firm he was working for allowed him the time to do this. The consultant believed that there was a trade-off between providing time for the building of networks and ensuring the trainee is generating income for the consultancy firm, what Klerkx and Proctor (2013) referred to as billable hours. Klerkx and Proctor (2013) argued that time could be an important barrier for knowledge exchange in the UK advisory system. However, after researching the area they concluded that although a challenge and a constraint, it did not appear to be a major hindrance to knowledge exchange. In contrast it was identified as an important barrier for some consultancy firms in New Zealand (Kenny and Nettle, 2012). In a later study, Kenny and Nettle (2013), reported that 85% of the New Zealand farm management consultants that answered their survey viewed time as a key limiting factor to them participating in network building activities.

In the farming sector there is competition around who provides advice to farmers. The consultant in this study competes directly with 18 farm management consultants in his region and he is also competing with a wide range of rural professionals whose areas of advice overlap. Part of his job is to evaluate the advice other rural professionals (bankers, seed and fertiliser reps, veterinarians, LIC and DairyNZ staff) provide to his clients. Because the consultant is competing with other advisors in the field, he has to know where he is in the "**relationship circle**" relative to the other advisors who are advising his client. He needs to know who is the most trusted advisor in the different areas he provides advice. In some areas it is himself, but in other areas it may be another advisor (e.g. a seed rep). This is important because one of his roles is to evaluate the advice provided by other advisors to ascertain if it is in the best interest of his client. He has to be aware of the other people providing his client with advice and where they stand in terms of credibility relative to himself. Klerkx and Proctor (2013) also reported that competition and commercial interests influenced advisory behaviour and advisors sought to prevent encroachment into their professional territory by other professional groups. They stated that advisors were actively working to prevent their professional identity becoming blurred.

In this pluralistic advisory system, the consultant also noted that a key issue for a consultant is to determine what areas one is competent to provide advice in and which areas they are not. Once an issue faced by a client moves out of the consultant's area of expertise, he will then refer them to the appropriate person who has the expertise to help the client. For example, he may refer them to a lawyer, a banker or an engineer. He stated that "*you've got to know where your knowledge stops and when to refer it to someone else*". This is critical for a consultant because it can create major problems and impact on their reputation. Klerkx and Proctor (2013) found that the land management advisors in their UK study were also actively referring clients to other advisors to ensure their clients received a coherent programme of advice. They however, also identified a tension between collaboration and competition in a pluralistic advisory system because of issues to do with encroachment on another's professional territory. Advisors were found to protect their specialist knowledge and work to ensure they maintained a role within the extended networks. Kenny and Nettle (2013)

in a survey on New Zealand farm management consultants reported that 70% of respondents would seek out additional information rather than make referrals to other advisors. Areas where referrals were unlikely to be made were in terms of grazing management, whole system integration and animal farm management, areas of core activity. Referrals were more likely to be made in areas such as dispute resolution and mediation, compliance, farm infra-structure (e.g. dairy shed design) and dairy farm conversions. Many of these areas were domains where consultants considered they lacked adequate knowledge (Kenny and Nettle, 2013).

The study did find that the consultant's professional association played an important role in knowledge exchange encouraging both bonding, bridging and linking social capital. It organised regional branch meetings and a national conference that brought together farm management consultants, other rural professionals and scientists and academics. It also produced a journal that is published several times per year and keeps members up to date on technical, management, regulatory and emerging issues that are of relevance to members. Kenny and Nettle (2012) also reported that the professional body for farm management consultants played an important role in knowledge exchange in New Zealand. Similar findings in relation to land management advisors in Britain were reported by Klerkx and Proctor (2013) who found that professional associations played an important role in building networks and enhancing knowledge exchange. They also believed that professional associations could play a more proactive role in this area.

4.6 Implications for Training

The research on expertise in farm management revealed that top consultants require problem solving, practical, metacognitive and interpersonal communication skills. Newly hired consultants will have different skill sets, backgrounds and goals. These trainees need to be supervised and mentored by a senior consultant in the firm. In order to build up the trainees' expertise, the consultant who was interviewed believed that it was necessary to focus on three (inter-related) areas – extend their knowledge base, build their interpersonal skills and provide opportunities to learn from experience. As a first step, trainees can rate their own skills using the capability assessment instrument (Kenny and Nettle, 2013) which quickly pinpoints their strengths and weaknesses. Alternatively they can tick off the categories in a whole farm appraisal questionnaire. A plan for accelerating their learning can then be tailored to their needs. The detailed activities that the expert consultant proposed for accelerating the development of expertise were generally in line with the finding from the educational researchers.

In general, a new consultant needs to understand areas such as cows and grass, soils and nutrient management. Trainees can be asked to enrol in appropriate courses as necessary in order to build their declarative, theoretical knowledge. Relevant resources can be made available to them but they can also be asked to find their own (e.g. on the web.) New consultants also have their own goals as Kenny and Nettle observed (2013.) Someone might wish to focus on an area in which they have little experience, take courses (e.g. in Ethics) in order to obtain professional recognition or specialize in a particular topic (Kenny and Nettle (2013). All these issues need to be taken into account in a plan. By attending seminars, and conferences, taking course and searching for resources, the knowledge and skills of trainees can be upgraded. Being aware of the wide variety of professional development opportunities should help foster the habit of lifelong learning.

People skills were seen as so important by the expert consultant that he would not actually hire anyone without them. He believed that it was hard for those who are not a little extroverted to enjoy being in the profession. There are courses they can take on topics such as questioning and listening. The consultant believed that technical training was immaterial without the interpersonal skills required to build up their professional and farmer networks. They can meet other professionals (bankers, accountants, reps etc.) through attending conferences, field days, and seminars. Through such contacts trainees can learn about current developments and trends in the industry. To meet future clients, trainees need to go to any event (such as discussion groups or field days) which gives them the opportunity to meet and socialize with a large number of farmers. The consultant responsible for mentoring a trainee can introduce them to farmers but essentially it is up to trainees to build up their clientele.

Practice is essential for the development of competence. It promotes active rather than passive learning, encouraging quality of effort. The expert consultant suggested a large number of ways in which farm visits could be used for training purposes. From the start, the trainee would not only be expected to observe what was happening on farm but also be asked to play an active role whether reviewing what the consultant did or writing up an account of the visit. This active participation forces the trainee to pay attention to what was happening. It provides an opportunity to see the problem solving processes followed by the consultant (including the heuristics used and the script that was followed.) It also provides an opportunity to test the skills of a trainee. Even getting a trainee to write up an account of a visit to farm makes it very obvious how clearly they viewed the situation.

It was essential for the consultant that reasoning skills should be practiced in context (either on farm or using realistic data). This could be done in many different ways. Trainees can use the information in appropriate case studies to analyse problems and critique solutions. When visiting the farm with a consultant, the trainee could be asked to identify the relevant issues or write the follow up letter. The trainee could even be asked to solve a problem independently without the presence of the consultant on a visit to a friendly farmer. Examples of reports and letter would be made available to the trainee to see the kind and standard of documentation required (Vygotsky's (1978) scaffolding). Another way to develop logical thinking skills is by analyzing situations using realistic data on software such as Farmax and Dairy Base.

Trainees should be exposed to a wide variety of situations in the opinion of the consultant. He mentioned that there were plenty of chances to visit University (Massey or Lincoln) or Demonstration farms (TARS.) The trainees could be asked subsequently to describe what was happening on the farm and whether things could be done differently. These visits enable observation and estimation skills to be practiced whilst also offering an opportunity for reflection. Activities such as these extend the trainees' knowledge-base whilst encouraging the active retrieval of content from memory.

The consultant believed that the fastest learning occurred when trainees were thrown in the deep end. An exercise does not have to be enjoyable. He himself loathed such experiences but found it an effective way to learn. By tackling a difficult problem (e.g. writing the draft report for a whole farm appraisal), a trainee is required to think things through without the consultant listing the issues. The most valuable experience for a trainee, in the opinion of the consultant is the opportunity to learn from their mistakes. Timely and appropriate feedback, though, needs to be provided tailored to the personality of the trainee. Generally, the consultant advocates highlighting the merits of a piece of work (e,g, a report) and identifying what could have been done better. The consultant might also say how he himself would have tackled a problem

The mix of activities proposed by the expert consultant should help the trainees to think both intuitively and rationally. An experienced consultant should act as a mentor to the trainee, providing advice and relevant examples (letters, reports, analyses etc.) The trainee is exposed to best practice with the chance not only to watch the consultant in action but also to participate in the problem solving activities. The situations met are realistic and there is no danger of them failing to scale up. Attending seminars, conferences, field days, discussion groups etc. provide opportunities for trainees not only to extend their knowledge but also to build their professional and farmer networks. Overall, the expert consultant believed that following a programme of this kind tailored to a trainee's needs could reduce the time taken to become proficient by 2 to 3 years.

The recommendations made by the consultant are very similar to 15 of those proposed in the literature (Table 13). With regard to a sixteenth recommendation, opportunities for reflection to support "training to learn", there were plenty of chances for a trainee to reflect on what had happened. The consultant did not, though, specifically encourage trainees to become self-regulated learners. Two other issues were not mentioned by the consultant. Firstly, no reference was made to the possible risk that accelerating expertise could be detrimental to the generalization process. There would be a plan in place, though, for a trainee which should help avoid this occurring. Secondly, the consultant did not refer to lifelong learning. A trainee would be advised, however, to attend so many kinds of professional development activities (take courses, go to seminars, conferences and field days etc.) that they should be aware that in their profession they need to keep on learning.

Table 13 Comparison of recommendations from the literature with those of the consultant

Recommendation from the literature	Y/N
To tailor the programme to needs	Y
To provide a wide variety of learning opportunities	Y
To provide appropriate and timely feedback	Y
To teach reasoning skills in context	Y
To ensure match between training task and environment	Y
To ensure that tough cases are met	Y
To ensure that people learn from their mistakes	Y
To encourage quality-of effort	Y
To help consultants think both intuitively and rationally	Y
To support active retrieval of content from memory	Y

To extend the knowledge base	Y
To ensure there are appropriate opportunities for reflection	
To provide scaffolding where appropriate	Y
To avoid relying solely on guidelines	Y
To help people identify learning activities in work place	Y
To make use of the expertise of others for mentoring	Y
To foster the habits of lifelong learning	N
To ensure that accelerating expertise is not detrimental to the generalization process	N

4.6.1 Extending the training programme

The proposals made by the expert were very comprehensive but did not fully cover the metacognitive skills required or look in detail at ways to help trainees face some of the challenges they have to meet (See section 9.1).

4.6.2 Metacognitive skills

Any programme for helping a trainee to build up their expertise needs to emphasise the development of metacognitive skills; this is a very effective way of promoting accelerated learning (Hoffman et al, 2010). The consultant did not see this as a major component of the plan for training new employees. Two excellent ideas from this literature can be used in a training programme – asking the trainee to keep a learning diary (Spence and Blakey, 2008) and using wrappers (Lovett, 2008.) The details of what is included in the diary can be negotiated between the consultant and the trainee. There are various models available. One reflective diary for those on work placement includes sections on recording the work undertaken, noting skills developed and recording areas for improvement (University of Glasgow). The work diary based on the research of Amabile and Kramer (2007) from Harvard focuses more on personal growth. Writing a daily log can enable people to be become more autonomous, learn from mistakes and identify obstacles in their way. Another example from the Coventry and Warwickshire Lifelong Learning Network in response to the needs of vocational students includes questions such as the following:

- What was I trying to achieve?
- What knowledge would have helped me?
- How does this connect with my previous experience?
- Could I have managed the situation better? How?
- What do I need to do to learn from this experience?

The habit of reflection allows trainees to identify where they have made mistakes and how they can improve their skills. For example, a visit to a farm might have gone badly because the client did all the talking and the trainee lost control of the situation. When thinking about this experience, various ways of dealing with such situations in the future can be identified and advice sought from the consultant. A post-mortem on how well a consultancy visit went should become, over time, a routine activity for a trainee. Reflective thinking skills can even be used following Klein (2003) in a pre-mortem, an attempt to determine in advance the weak points of a plan.

Whilst keeping a reflective diary might be seen as too time-consuming, wrappers can be completed very quickly. These are short add-ons to a learning task. If a trainee has been asked to visit a demonstration farm and report back on the management practice followed, they can also be asked to identify the three most valuable things they learned that that day. Brief, though these activities are; they help focus attention on important issues.

4.6.3 Managing the information collection process

The expert consultant described in general terms how a progamme of activities could be tailored to meet the needs of a newly hired employee. Some examples were given of suitable learning tasks but the list was not intended to be comprehensive. Detailed ways of helping trainees to manage some of the challenges identified in section 9.1 need to be identified. One area that has not been mentioned is the problem of managing what has been described as the problem space. The consultant has to be able to build up a picture of what is happening on a farm. The data collected is useful for both analyzing the nature of the problem and generating possible solutions. Checklists can be used as in the Gap Analysis project to ensure that all relevant information is collected but even then the junior consultants complained that the visit took far too long and the process needs to be streamlined. Knowing how to obtain information is also very important. The need for training in

questioning skills was noted by participants in the Gap Analysis research who wanted to be able to talk to the client in a conversational fashion. It is also essential that consultants learn about the less common ways in which information can be obtained such as making inferences or re-creating the state of the farm prior to the visit.

A consultant also has to be able to identify critical cues, manage information overload, verify data and triangulate different kinds of evidence. Perhaps process worksheets (Nadolski *et al.*, 2006) which provide hints on how to successfully complete a task could be developed to help trainees focus on key indicators and critical cues. Some short exercises could be set of the type proposed by the consultant, such as asking trainees on a farm visit to prioritise the areas for investigation. It might also prove necessary to have short training sessions on topics such as data triangulation or managing information overload. Further research in this area would be useful to identify suitable methods of instruction.

5.0 Conclusions

The objective of this study was to investigate the problem solving processes used by "expert" farm management consultants to provide insights that might assist with the training of novices. The consultant identified three important areas in terms of the capability of farm management consultants. These were: 1) interpersonal communication skills, 2) an ability to think holistically or systemically in relation to farming systems and 3) analytical ability. The consultant believed that interpersonal communication skills were the most important skills and also the most difficult to learn. As such, he recommended that the primary criterion consultancy firms use for the recruitment of a new consultant was the individual's interpersonal communication or "people" skills.

This study also highlighted the importance of the client recruitment process in consultancy and the role that social capital played in this process, something not previously reported on in other New Zealand studies. The consultant actively builds networks to obtain access to resources and in particular, new clients. Interpersonal communication skills play an important role in the building of these networks. The consultant uses his existing networks of clients and rural professionals to provide him with referrals to obtain new clients. Such referrals rely heavily on his professional reputation, something a novice consultant does not have.

The consultant actively builds networks with non-client farmers through attendance at discussion group meetings and a plethora of farmer meetings and events. At these forums, the consultant uses his rapport building skills and demonstrates his technical competence to attending farmers. By demonstrating his technical competence and that he is compatible with a farmer, the consultant secures an invitation to visit a potential client. The consultant argued that "cold calling" was a poor means of recruiting new clients, but that a "warm call" had a 70 – 80% success rate. As such, it is critical that a novice consultant has time to build networks with non-client farmers. DairyNZ could play a critical role in this process by allowing novices access to discussion group meetings.

The study highlighted that the consultant used a non-fee charging "engagement visit" to secure a new client, something not previously reported in the literature. This was a half day visit where the sole aim was to recruit a new client. The aim of this visit was to build rapport with the potential client, demonstrate the technical competence of the consultant and provide an overview of the services the consultant could offer and identify what the potential client would like from such a relationship. This could be a useful process that a novice consultant might use to expand their client base.

The study highlighted the importance of rapport building from a consultancy perspective. This is a critical skill for novice consultants and an area that is not covered in the Whole Farm Assessment and Planning process. It is important for: 1) building networks, 2) securing and then retaining a new client, 3) positioning the consultant within the relationship circle such that a comfortable and relaxed working relationship develops which is important for obtaining sensitive information required for effective problem solving.

Information gathering was a key process used by the consultant with semi-structured interviewing playing a central role. However, documents and observation were also important sources of information. Although the Whole Farm Assessment and Planning process has been developed to ensure a novice consultant collects the breadth of information, it does not provide much insight into how this data should be collected or the different means by which it can be obtained. Similarly, although it identifies what information a novice consultant must collect, this has created information overload problems. The consultant provided some insights into how this

problem might be reduced. He used problem types to prioritise the information he collected on a first consultancy visit. These problem types were: 1) seasonal problems, 2) district problems, 3) problems identified by the client and 4) problems diagnosed by the consultant. The latter two problem types were identified during the engagement visit. However, they could be identified early in a visit, if an engagement visit was not possible. This highlighted the role that mental schema and checklists played in the consultant's information gathering process. It may be possible that such schema or checklists could be developed in-house for a consultancy firm. For example, a checklist of problems by district or problems by season could be developed.

Triangulation of information was another important skill the consultant stressed during the information collection process. This was highlighted as a problem with the Whole Farm Assessment and Planning process because the novice consultants were spending time asking cross-checking questions. Four types of triangulation were identified: 1) temporal triangulation, 2) triangulation by information source, 3) triangulation of the client's perceptions of the state of farm resources with the observed state, and 4) triangulation of client perceptions of behaviour and observed client behaviour. Given this was a problem area for the WFAP process, this could be a useful area for further research, particularly in terms of what expert consultants are observing during a visit.

The focus of the Whole Farm Assessment and Planning process is information gathering, however, the study highlighted that although important, it is how that information is processed that is the critical aspect of consultancy. It was found that the consultant used benchmarking and comparative analysis to classify the client, farm family and farm business and that this classification process was central to problem solving. Classification was used to: 1) build a mental picture of the farm family and business, 2) identify constraints, 3) specify strengths and weaknesses, 4) diagnose problems (or opportunities) and 5) tailor solutions to the client's specific situation. As such, processes that can help a novice consultant with the classification of information will be an important addition to the Whole Farm Assessment and Planning process. Of particular interest were the techniques used by the consultant to classify the management capability of the client, the quality of their resources and the physical and financial performance of their farm business.

The consultant used a range of classification techniques that varied in the level of complexity to limit the scope of his problem search when diagnosing problems for a new client. Normally, parameters for the client, farm family and farming system were compared to benchmarks or industry standards and then classified. If these were classified as a negative deviation from the benchmark or industry standard, then this identified a potential problem type. Using his mental schema associated with his problem classification process, the consultant could hypothesise the cause of the problem. Each problem type had a set of indicators that the consultant used to diagnose the exact nature of the problem. Each indicator had a set of symptoms or relevant cues from which the consultant collected information to confirm or refute the existence of the problem and the cause of the problem. The consultant also uses the classification of a problem type to identify opportunities for introducing new technologies for improving the performance of the farm business. At a high level, the consultant classified personal constraints to the farm business. These included: 1) knowledge gaps, 2) attitude problems and 3) social norms. Each of these different problem types requires a different approach to solve them ranging from improving the clients level of knowledge through to changing either their attitudes or their beliefs in relation to prevailing social norms. These classification schemas could be developed to help novice consultants in relation to improving their diagnostic processes.

The consultant also highlighted that during the diagnostic phase, a client is placed in a vulnerable position and needs to be handled tactfully. A consultant has to avoid placing blame and must be aware of what problems are sensitive and which are not. Because the consultant is not the problem owner, information may be withheld by the client, thus he has to be careful when making a diagnosis. A critical aspect of the first consultancy visit is the diagnosis of problems that are of interest to the client, these must be a priority for any consultant. However, it is also important that a consultant diagnoses other problems that may not be of interest to the client, but are important to the client. This is important for the consultant's professional reputation and ensuring that he has the client's best interest at heart. As such, diagnosis is a process of negotiation with the client to determine what problems exist and what problems will be pursued.

The classification process also plays an important role in solution generation and the tailoring of solutions to a client's specific situation. Each problem type has a set of possible solutions. Each solution has a set of attributes or aspects. The consultant uses the goals, preferences and constraints he has identified earlier in the visit to screen the solution set and select the solution most appropriate for the client. This process is similar to the choice making process "elimination by aspect". Again, it may be useful to develop such solution sets and the respective aspects for the various solutions so that they could be used by novice consultants.

This study identified that the consultant had five important networks that he used to obtain information, knowledge and resources. These were: 1) farmer clients, 2) non-client farmers, 3) farm management consultants, 4) other rural professionals and 5) scientists and academics. Most of the networks the consultant operates in are distributed networks that are linked by either bonding or bridging social capital. This includes his network of work colleagues and peers in the farm management consultancy field, i.e. his community of practice that is linked by bonding social capital. It also includes his network of rural professionals with whom he interacts or his network of practice (NoP) that is linked by bridging social capital. The consultant's farmer networks (client and non-client) are also distributed networks that are linked by bridging social capital. The consultant mentioned that he obtained useful information and knowledge from his CoP and NoP. The consultant actively expands his NoP through his attendance at events because this provides him with access to not only information and knowledge, but also members of his NoP will refer clients to him. The consultant targets particular actors to expand his NoP in areas that are useful for his business. The consultant views his farmer networks as an important source of tacit knowledge about practice or what he called practical knowledge (know-how). They are also an important source of new clients.

The consultant proactively developed a decentralised network with linking social capital to access scientific knowledge. These networks were with scientists and academics and he spent time developing and maintaining these networks. He was also proactive in the selection of actors that he wanted within his network. His criteria for the selection of individuals within his decentralised network were that they had to provide knowledge that was useful for his consultancy business and that they provided objective and unbiased information about key areas in dairying. The consultant also targeted actors in areas where he was not particularly strong (e.g. dairy nutrition) and he also targeted actors that were in emerging areas (e.g. environmental concerns around nutrient budgeting and nitrogen leaching). As such, the consultant's network was built around key people chosen on the basis of carefully thought out criteria, not organisations. Most of the information and knowledge the consultant obtained from his decentralised network of scientists and academics was used to develop his subject matter expertise. In some cases it also allowed him to provide his clients with a new service (e.g. nutrient budgeting and nutrient management advice). In relation to training novice consultants, the consultant stressed that it is critical for them to develop a network of resource people. If they do not do this, they will find consultancy quite difficult. He believed that novice consultants would struggle until they have developed such networks. The consultant identified a possible barrier to a novice consultant developing suitable networks was ensuring that the firm he was working for allowed him the time to do this. The study did find that the consultant's professional association played an important role in knowledge exchange encouraging both bonding, bridging and linking social capital.

The metacognitive skills of the consultant give him conscious control of the process being followed and the ability to adapt his approach if necessary. The scripts he follows (for the engagement and consultancy visits) provide the framework for his activities before, during and after a visit to a farm. The engagement visit is vital since if it is successful, the consultant will acquire a new client. During his drive to the client's farm, the consultant decides what he will cover on the visit, how to open the conversation on arrival at the farm and topics he should discuss during the ice-breaking phase. During the visit, there will typically be a period of ice-breaking conversation, a preliminary discussion, a farm inspection and finally a discussion about what he can offer the potential client and the cost of his services. The consultant tries to ensure that the client will feel comfortable working with him and fully understand the nature of the services he is offering. The script for the first consultancy visit is more extensive (gather information, identify the problem, determine alternatives, analyse alternatives, choose an alternative and plan the implementation) than the engagement visit. On this occasion, the consultant frames the problems facing a client enabling him to collect the relevant data. He always takes care to cross check the information given by the client to manage the uncertainty in the process. Overall, the consultant always has a clear idea of what to do and how to proceed effectively.

There are a wide range of activities that can assist a new consultant to become expert more quickly. They can take courses and attend seminars, conferences and field days, for instance. The consultant also suggested many other ways of helping trainees extend their knowledge and experience. Farm visits can be used as an opportunity to provide practical experience for the new consultants and allow them to exercise their reasoning skills in situ. Trainees should be exposed to a wide variety of situations including tough cases. Given the importance of rapport building and metacognitive skills as reported in this study, these too need to be emphasized and explicitly practiced. This study has also indicated that there are other specific abilities in the problem solving process that a trainee needs to practice e.g. financial analysis, questioning and listening, data triangulation and classification skills. Farm visits as well as exercises based on relevant material (from case studies and databases) can be used to further the development of such skills. Overall, trainees need to have a consultant who is able to act as a mentor as well as an exemplar and teacher. Any development programme has to be tailored to the goals and abilities of the new consultants.

The generic and specific challenges relating to educating farm management consultants have been described in section 9.1. One of the aims of this research is to suggest ways of helping new farm management consultants

to become proficient practitioners (Dreyfus and Dreyfus, 1986; Kenny and Nettle, 2013; Eraut and Du Boulay, 2000). Any programme for assisting them to build up their expertise should be based on research in the educational and cognitive domains. The following recommendations for developing and accelerating expertise have been made in the relevant literature:

- To tailor the programme to the individual, taking their weaknesses into account (Ericsson, 2006; Pachman, 2012).
- To provide a wide variety of experiential learning opportunities (Andrews and Fitzgerald, 2010) with desirable difficulties (Hoffman *et al.*, 2010).
- To provide appropriate and timely feedback (Hoffman *et al.*, 2010, Lajoie, 2003).
- To teach reasoning skills in context (Eraut and Du Boulay, 2000; Andrews and Fitzgerald, 2010).
- To ensure a match between the training task and the actual environment (Andrews and Fitzgerald, 2010). Scenarios should be used appropriately (Jonassen, 2000; Jonassen, and Hernandez-Serrano, 2002); the fidelity should be as high as needed (Hoffman et al., 2010).
- To ensure that tough cases are met (Ericcson, 2006; Andrews and Fitzgerald, 2010; Benner *et al.*, 2008; Hoffman *et al.*, 2010) even if the tasks are not enjoyable (Pachman, 2012).
- To ensure that people learn from their mistakes (Fadde and Klein, 2010; Hoffman *et al.* 2010).
- To encourage quality-of effort (Pachman, 2012).
- To help consultants think both intuitively and rationally, that is develop both System 1 and System 2 reasoning processes (Eraut and du Boulay 2000; Evans, 2008).
- To support active retrieval of content from memory (Eraut and du Boulay 2000, Karpicke and Roediger, 2008).
- To extend the knowledge base required to support System 1 and System 2 thinking (Kirschner *et al.*, 2006)
- To ensure that there are appropriate opportunities for reflection supporting "reflective training" or "training to learn." (Kriewaldt, 2001, Hoffman *et al.*, 2010).
- To provide scaffolding where appropriate (Vygostky, 1978).
- To avoid relying solely on guidelines and the heuristics of others (Eraut and Du Boulay, 2000; Benner *et al.*, 2008).
- To help people identify learning activities in their work place (Fadde and Klein, 2010).
- To make use of the expertise of others for mentoring and providing specific examples such as demonstration/stories (Eraut and du Boulay, 2000; Lajoie, 2003; Hoffman *et al.*, 2010).
- To foster the habits of lifelong learning, assisting people to be receptive to new ideas (Eraut and Du Boulay 2000; Benner *et al.,* 2008; Fadde and Klein, 2010).
- To ensure that accelerating expertise is not detrimental to the generalization process (Andrews and Fitzgerald, 2010).

Deliberate practice to accelerate learning should assist junior farm management consultants to become more proficient. Their training may also enable them to become experts within a reasonable time frame.

6.0 Acknowledgements

The authors would like to acknowledge the generous amount of time the case consultant provided for this project. He has provided the researchers with extremely valuable insights into the consultancy process and this is much appreciated.

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7.0 Appendix 1 Case Report

This section describes the results from the case study. First, the attributes of a successful consultant are set out. The roles the consultant plays in his professional relationship with a client are described. The means by which the consultant secures a first visit with a client are outlined. Then an overview of the phases of a typical first visit to a new client is described. This is then followed by a detailed description of the problem solving process undertaken by the consultant on a first visit. Finally, the consultant's views on how best to train a novice consultant are reported.

7.1.1 Important attributes of a good consultant

The consultant stated that "Our game is personality", "you're selling yourself, your personality, who you are and so-on. He knows of technical people who would not make good consultants because even though they know more than him about dairy farming, but they do not have the personality for the job. Personality is essential to ensure compatibility with the client. The consultant stated that if a consultant is positive, "people want to be around positive people". He noted that "what makes people engage with people is happy people, positive people, people that can make them feel better. Humour is important here and the consultant considers that if someone is "super serious" they will struggle in the consultancy field. However, he stated that a consultant "does not want to be wildly optimistic because that falls into the land of dreaming, so you need a balance, you've got to be positive, but you've got to be realistic. He made the comment "If you have got six inches of water over your farm, you have got six inches of water over your farm. As such, a good consultant has to have good interpersonal communication skills, put across a positive and confident demeanour and they need to be a people person, but they need to be realistic.

The consultant compared his role to that of an electrician. He stated that when someone employs an electrician, they do not really care about his personality of if he is an introvert or an extrovert. They are more concerned about the electrician fixing the problem they have. In contrast, the consultant must sell himself to the client. They want to know who he is, whether or not he is compatible with them. The consultant has often been recommended to the potential client by someone they know, but as the consultant pointed out, they do not really know how good he is in terms of helping them meet their goals and providing good advice.

The consultant stressed that a key attribute of a good consultant is the ability to work with a range of people. He noted that some consultants work with a narrow range of clients, but he prefers to work with a broader range. The consultant noted that some clients like consultants who are blunt almost to the point of rudeness. The consultant can play this style, but it is not his natural style and he finds it more difficult to take on this role, "it requires more energy". He states that he has the ability to work with a range of farmers from those that are soft spoken and not pushy through to the other extreme. A key element of the consultant's style that his clients like is that he discusses issues with them, he develop dialogue around the problem. The consultant described himself as "laid back, easy going, takes a lot to rattle me". However, he can "ham it up" or play a more serious or challenging role where he is more direct and to the point if the client requires this. However, he reiterated that this was not his natural style and it requires effort to play this role rather than revert to type. For some consultants, they have a more direct point which suits some clients, but other clients would be upset by such a direct approach. The consultant identified a local consultant who has this style and he attracts clients who like his direct approach.

The consultant stressed that a novice consultant has to be very good analytically. They need to be able to analyse the impact of a change and identify the key drivers of systems performance. He believes that there is a lot of "fuzzy thinking" in the consultancy industry at the moment. The consultant prides himself on "being very analytical" and he stressed that a consultant has to have an holistic understanding of a farming system. He provides the example of some consultants advising a farmer to increase per cow production by reducing stocking rate, but that they do not take into account the impact of such a change on the system or on profitability. The consultant uses profitability as the indicator of whether or not a change to the farming system is beneficial to the client. Behind any advice the consultant provides to a client is a solid analysis of the profitability of the change. As such, to do this job well, a consultant has to be logical and analytical. If they are not, the consultant believes that consultancy is probably not the job for them.

The consultant also stressed that the advice he provides to clients has to be practical. He stated "if you aren't practical, pack up and go home". The consultant also pointed out that a key issue for a consultant is to determine what areas one is competent to give advice in and which areas they are not. Once an issue faced by a client moves out of the consultant's area of expertise, he will then refer them to the appropriate person who has the expertise to help the client. For example, he may refer them to a lawyer, a banker or an engineer. He stated that "*you've got to know where your knowledge stops and when to refer it to someone else*". This is critical for a consultant because it can create major problems and impact on their reputation.

7.1.2 Roles a consultant can play

The consultant can play a number of roles for a client and it is important that the client understands this. The first role is as a provider of technical on-farm advice. This could be about increasing milksolids production, fertiliser advice, grazing management, cow nutrition and so-on. For example, the client could have had the fertiliser rep or the seed rep out recently and the client will ask the consultant what he thinks of their advice about fertiliser or a seed mix. It could be about the use of animal health remedies and so-on. A large part of the consultants work is providing technical on-farm advice.

The next role the consultant can play is as a financial advisor. In this role, the consultant looks at the profitability, liquidity and solvency of the farm business. He has a range of key performance indicators that he uses when assessing the financial performance of a client's business. The next role the consultant can play is that of an advisor on business strategy and governance. This involves strategic planning, and helping the client determine the future direction of the farm business. The consultant also has expertise in governance and he provides advice on this to his larger clients. The next role the consultant can play is in relation to human resource management or what the consultant calls "the people side of the business". This includes the relationship between the sharemilkers and owner, the parents and their children and the client and his or her staff. The final role the consultant takes on is in the area of environmental compliance. This is an area of uncertainty for many of his clients and his role is to provide them with guidance.

7.1.3 Securing a first visit, building a farmer network

The consultant stressed that it is not the process that a novice consultant goes through on a first visit that is important, it is how they secure that first visit with a new client. He commented that a cold call is a poor way of capturing a client and normally it has a fairly low rate of success. To successfully secure a client, a consultant must either secure an invitation to visit a potential client's farm or secure an invitation to undertake a consultancy visit. The latter often depends upon a referral from either a rural professional or a farming friend. Such referrals tend to rely on the reputation of the consultant. The consultant highlighted that a novice consultant will not have a professional reputation in the district and as such, he will have to rely on the latter approach. The consultant makes the distinction between "*a cold visit*", where a consultant arrives at a farm unannounced and "*a warm visit*", where a consultant has been invited out to the farm. If he is invited out to a farm on "*a warm visit*", he has a 75 – 80% probability of securing a new client. The consultant stated that "the problem is that a farmer is not going to cold call somebody unless he's got a reference or a referral, or he has spoken to the consultant and he sounds alright". He stated: "So then it's to get the invitation to talk that is 80% of the problem of building a business".

To secure a warm visit, the consultant stressed that one must build a network of farmer contacts. To do this, a consultant needs to take advantage of as many opportunities as possible to meet farmers. In his early days, the consultant built a large part of his farmer network by going along to all of the dairy discussion group meetings that were run by one of the senior Dexcell (now DairyNZ) consulting officers (extension agents). At that stage, he did not have a lot of pressure on him to earn fees, so he had time to build his networks. The senior consulting officer was happy for him to attend discussion groups and this gave him access to 10 – 15 groups of farmers with each group comprising 10 – 12 dairy farmers.

During interactions with farmers, the consultant avoided a "*hard sell*" because this often turned farmers off. Rather, he would chat to the farmers and get to know them. He would also provide what he called "*snippets*", small pieces of advice or make useful comments at the group meeting. He "*let himself sell himself*". This low key approach often resulted in farmers approaching him about coming out to their farm, for "*a warm call*". Once this happened, he would contact the farmer and arrange a visit. Alternatively, he might ring a farmer from within the group the night after the meeting and chat to them. He would not broach the subject of a visit, but rather he would build a relationship with the farmer. He would wait for the farmer to approach him. The consultant stated that in his first three years he might have spent two hours per night on the phone talking to farmers. It may take several months to secure a first visit to a potential client. The consultant gave an example of how it took him several months to secure a visit to a farmer who owns several dairy farms.

The other mechanism the consultant used to build his farmer network was to attend meetings that would be attended by dairy farmers. This would include field days, Dairy Company meetings, farmer conferences, dairy farmer of the year competitions, sharemilkers of the year competitions and so-on. Again, the consultant used the same process. He would chat to farmers, learn about them and their business and provide *snippets* of advice.

The consultant stressed that he is not a "*hard salesman*", he is not good at that approach and he feels uncomfortable undertaking this role. That is why he has developed a softer approach to capturing farmer clients. He stressed that consultancy is a personal game. The client has to feel comfortable with the consultant

and vice versa. By meeting farmers in these group situations, the consultant establishes if he is compatible with a potential client and it also allows the farmer to assess this from his perspective. These interactions allow the consultant to demonstrate that he has knowledge and experience that might be of value to the client. Farmers value experience and this makes it difficult for a young consultant who is just starting out.

The consultant stated that to secure an invitation to come out to a potential client's farm requires good social skills. He rates social skills more highly than technical skills in terms of becoming a successful consultant. A good consultant also has to have confidence in themselves and back themselves in terms of performance. The consultant stated that a consultant has to be able to admit when they don't know something, but they have to be definite about what they do know. The consultant commented that when he came from University there were a lot of things he did not know and he also lacked confidence. However, at discussion groups, he would stress the things he did know well to enhance his reputation in that area. He would also avoid commenting about areas that he knew little about. In the early years he would spend much of his time observing, listening and learning. He also stressed the importance of being "practical" as a consultant. This is because farmers "*hate things that aren't practical*". The consultant stated that a simple way to lose credibility as a consultant is to provide some impractical advice to a farmer. The consultant also stressed that during his early days, the Advisory Services Division of MAF provided excellent resources for training young graduates. There was a range of specialists that could be contacted if a staff member lacked knowledge in an area. This ranged from technical expertise to the facilitation of discussion groups and adult learning. They also had regional research farms that were another useful resource for a recent graduate. The consultant however stressed that the most important knowledge source was visiting farms to observe what worked and what did not work. This "how to" knowledge was critical to a practicing consultant. It provided them with the practical knowledge that farmers valued. The consultant commented that a consultant is "*a broker of what other people do*". A critical advantage for a consultant is that they visit 60 -70 farms per year and through this they "*see other people's ideas*". Once the consultant's network is built, he then obtains new clients through referrals.

7.1.4 A consultant's attitude to the adoption of his advice

The consultant was very clear about the fact that the client, not himself is the problem owner and that the final decision about the adoption of his advice rests with the client. He has a philosophy when working with clients which he believes is important for any consultant. His philosophy is that "*it is their business and it is their choice*". The consultant's role is to provide them with advice that is in their best interest. However, the client does not have to accept that advice. The consultant does ask that all his clients "give me the politeness of listening to what I have to say and the logic of what I have to say". Provided they do this, the consultant is happy for them to make the decision, even if it is to ignore his advice. If they do decide not to adopt his advice, he likes to think that they have thought about the reasons why they have not taken his advice. This philosophy is critical for the consultant's mental health, because without it he would become frustrated with his clients. The consultant stated that he is not like some other consultants that expect their clients to adopt 100% of their advice. He is happy if a client adopts 50% of his suggestions. He believes that his job is to provide his clients with the best advice possible and then the client can pick and choose which of the options that they want to adopt. The consultant also stressed that he has patience and that his advice often plants the seed of an idea which may take time to germinate. Farmers progress at their own speed and he finds some farmers progress more quickly than others.

The other key element the consultant considers if his client does not accept his advice is their goals and objectives. If a client does not adopt his advice, it may be that the consultant does not clearly understand their goals and what they are wanting to achieve. The consultant pointed out that it can take a long time to identify a client's goals and objectives. With some clients it can take several years to clarify these. This is why repeat visits and a long-term relationship are important because the consultant builds greater rapport with the client and as he gets closer to them, he learns more about them and what drives them and what interests them. Identifying a client's goals and objectives is not something that can be done quickly, it requires time. The consultant said that "*you actually have to be quite close to somebody personally and you share more with them and that happens with time*". By understanding his clients' goals, the consultant can become more effective in helping them achieve these. He noted that some farmers are quite open and other farmers will only allow a consultant to know some of their goals. Over time, clients reveal the factors that are driving them through their decisions, actions and what they say. A client's goals change over time and if the consultant is with a client over a long period of time, he will be helping them achieve a range of different goals. Often the consultant may be working across generations.

7.1.5 The phases of a typical first visit

A key finding from the study was that the consultant undertakes two types of "first" visits with a new client. The first visit is to engage or capture a client and to sign them up for repeat visits over the next twelve months.

It is only at the second visit, that the client begins to formally identify and solve problems for the new client. As such, the following sections will describe two types of visits. The first visit, is the visit the consultant uses to engage a client and the second visit is the visit where the consultant actually initiates his first formal consultancy visit to diagnose and solve problems relevant to the client.

7.1.5.1 Level of engagement

The consultant did note that if a potential client rang him and wanted him to come out and do a consultancy, then this demonstrated that the client had engaged his services and his first visit would then be focused on "problem solving" rather than "engagement". He contrasted between a potential client contacting him and asking to come out to discuss the possibility of employing the consultant with a potential client contacting him to come out to talk about improving their productivity or profitability. As such, how the consultant responds to the first contact with a potential client depends upon the nature of the invitation. This will differentiate the nature and purpose of the visit. It will either be a visit to engage the client or it will be a consultancy visit to address issues that the client has raised over the phone. During the first type of visit, the consultant has not been employed and the potential client wants to meet him to see if the relationship will continue. For the second type of visit, the consultant has engaged and he will undertake a fee-charging visit. The visit may be initiated by a referral from a rural professional (e.g. banker) or a recommendation from a peer (e.g. neighbouring farmer).

7.1.5.2 The engagement visit

This section will describe the engagement visit which begins with the first contact from the client. During this visit, the consultant is establishing a relationship with the potential client. He will also discuss his fee, the frequency of visits, what services he can provide, and his strengths. In effect, the consultant is providing the potential client with his "profile".

7.1.5.2.1 Goals for the engagement visit

For the engagement visit, the consultant puts aside half a day and he does not charge the potential client for this visit. The consultant has a number of goals for the first visit and his most important goal is to build a relationship with the potential client. He stated that "What I do is you've got to make them relaxed, you've got to make them enjoy it. And if you can get a laugh or two during the visit, a bit of humour, you are halfway there". He stressed that an important goal is to ensure dialogue is occurring between himself and the potential client. He has to move from a situation of "coldness" to one where rapport is established. As such, rapport building is a critical element of that first visit. He stated that the client will be sitting there during a visit thinking such things as is the consultant "a stuffy bugger. Am I going to enjoy him, is he a nice guy, am I compatible, can I work with him"? The consultant must answer these questions for the client before he moves on to the next task which is helping the client identify and solve problems. Building rapport or a good relationship with the client is critical and to do this the consultant stressed the importance of "people skills".

The consultant pointed out that on the first visit he does not do any work for the client. His aim during this first visit is to visit the client and talk to him about what he could do for the client. This visit is in effect a "sales job". The consultant won't specify changes that he thinks the client should undertake on this visit. However, he will provide what he calls "titbits" or "ground bait" so that the client can see evidence of the sort of value the consultant might bring to the client's business. His sole reason for this visit is to engage the client and sign him up for repeat visits. He will not write a report after this visit, this occurs after the second visit. Often, if a potential client is looking for a consultant, he may approach two to four other consultants before making a choice. This is why the "engagement" visit is important, because it is through this visit that he can secure a new client.

7.1.5.2.2 First contact

For the first contact, normally the consultant is telephoned by a prospective client and invited to come out to their farm to talk about some issue. The consultant stressed that this is the important part; he has to get invited to a farm. Securing an invitation is critical for a consultant. There is a range of ways that he can secure an invite. He might have sold himself to the farmer at a meeting or field day. He stated that he might talk to a farmer at a field day and they might suggest he give them a ring about a potential visit. He would then follow up on this to obtain an invite to the property. Alternatively, a farmer may ring him up because the consultant has been recommended by someone else, either a farmer or a rural professional (e.g. bank manager). This is what the consultant calls "a referral" and this is where his reputation is important.

If a potential client contacts the consultant, the consultant organises a time and a date for a meeting and the location of their farm. He does not discuss any more than that because he has secured an appointment. He will discuss fees and other such information on the day of the visit. For this phone call, the consultant does not

obtain background information nor does he ask what the problem is, this information is collected during the visit. The consultant stated that if they do ask about the cost of his services, he gives them a half day rate, not an hourly rate. This is because he works by the half day. He stated that he is rarely beaten on price. He tends to charge slightly less than other consultants, but he does a high number of chargeable hours to provide a good income. As such, a first contact phone call might take 5 – 10 minutes. He also believes that during the phone call, the client does not want to spend 30 minutes on the phone, they want to meet him and that is their priority. Rather than spend 30 minutes on the phone in the evening, the consultant prefers to spend that time on the farm collecting the same information. In effect, the first contact phone call is only used to arrange a meeting between a potential client and the consultant.

7.1.5.2.3 Pre-visit analysis and preparation

The consultant does no analysis and minimal preparation in the office before a first visit to a new client. He thinks about the visit and what will "sell" his services to the client. He made the comment – "Yeah, I mean we're salesmen, we are just selling knowledge and advice, soft stuff, whatever". The consultant does not need to do a lot of preparation because he has a large body of experience to draw on. As such, he relies on this experience or expertise to allow him to undertake a first visit with minimal time spent on pre-visit preparation in the office. However, he does use the time on the drive out to the farm to prepare for the visit. He does this to utilise otherwise unproductive time, further improving his efficiency.

7.1.5.2.4 Drive to the farm and observation of the area

On the drive to the farm, the consultant will think about what he should cover during the visit and he will ponder why he thinks the potential client might require his services. In effect, he is developing his plan for the visit. He will go over the structure of the visit, arrival and ice-breaking conversation, the preliminary discussion around the kitchen table, the farm inspection and the final discussion after the farm walk. He will also think about elements of the visit. For example, how he is going to open the conversation when they meet and what he will do during the ice-breaking phase at the start of the visit. An important goal is to ensure dialogue is occurring between himself and the potential client. As such, he is thinking about the different topics he can cover to build rapport with the potential client. He might consider topics such as the weather, the industry and Fonterra (e.g. the pay-out has gone up 35 cents/kg MS or TAF). The consultant admitted that he does not normally have a lot of knowledge about the potential client, so he has to draw on what he finds out as he goes. On this visit, he does not draw inferences about the client from what he knows.

7.1.5.2.5 Arrival at the farm and ice-breaking conversation

Once the consultant arrives at the farm he introduces himself to the potential client. Who he meets depends on who holds the power in the relationship and what they decide. They tend to invite who they want to attend the visit and it could be a husband and wife, it could be a father and son and so-on. The consultant stated that it can range from just the husband because his wife is not interested through to everyone wishing to be deeply involved. He just has to see how the "lay of the land falls" and work from there. It also depends on age with older couples in their 60's operating differently because that is how they were brought up. Younger couples in their 30's and 40's are different with both partners normally wanting to be more involved. As such, the consultant "plays it by ear", he adapts to whatever the situation is on the farm. His key "golden rule" is not to upset an important member of the decision making team. The consultant pointed out that he also has a number of sole female clients, so it is not just husbands or husbands and wives. As such, one of his goals is to sort out who is interested and involved and who the important decision makers are. He goes onto a farm with no assumptions about who will be involved. He also does not involve people who do not wish to be involved as this will waste his time.

The consultant talked about the "power broker" in the relationship. This is the person in the business who is more dominant and has more control, more influence and more say in the decisions made on the farm. He noted that sometimes relationships are equal and sometimes they are not. The consultant stated that one partner may be less interested or they may have other things on and other responsibilities such as looking after the kids. He said that he soon learns about this, but he can make mistakes although most of the time he gets this aspect right. The consultant said that if the partner is interested, they will make sure they attend the meeting with him. As such, it is not difficult to identify the level of involvement the various parties on the farm want to have with him.

In terms of where the meeting takes place, the consultant leaves that to the potential client. It could be in the kitchen, the cow shed, or out on the farm. In most instances it is in the house and it begins with a cup of coffee. There is an initial ice-breaking session that may involve a discussion about the weather, the pay out, or what is happening in the industry. During this phase, the consultant is developing rapport with the potential client or as he stated "developing dialogue". During that initial phase, the consultant is trying to get the clients

to relax. He will use humour to relax the potential client, but his advice is that if you cannot do this naturally, don't. He normally has a few one liners that he uses during the early part of the visit. This is one of his strengths and he knows that he can use humour to good effect to build rapport. He stated that he does not go onto the farm and say "good day and what do you want?" Instead he builds rapport talking about things they know and things they are comfortable with.

7.1.5.2.6 Preliminary discussion

After a period of ice-breaking conversation the consultant then asks some general questions about the farm. This might include the farm's production levels, how many cows they run, the size of the cowshed, whether or not they have a runoff, the type of system they are running and so-on. The consultant uses a wide range of "general information gathering questions". He uses these to "form a picture of the farm. The consultant asks these general questions because it is "ground breaking", it helps build rapport. The consultant has 4 – 6 key performance indicators that he assesses during the engagement visit. He stressed that he does not do a lot of analysis, because he may not get the job. The other information the consultant finds out during the initial discussion is what is important to the potential client. This includes what is important to them, what they are after, where they want to be in the future, what do they want to achieve, and what are their objectives. During this phase, the consultant is also trying to establish what services the client requires from him so that he can focus his efforts.

7.1.5.2.7 Farm inspection

After the preliminary discussion, the consultant will undertake a farm inspection to observe the resources and discuss the management of the farm. He notes that this is important for building rapport because it is relaxing for the potential client as they tell the consultant about their farm. During the farm inspection he gets the potential client to tell him about the farm. He tends not say a lot, rather he is observing the farm resources and infra-structure and listening to the farmer talk about the management of his production system.

On the farm inspection during an engagement visit, the consultant provides what he calls "freebies" or free advice. For example he might identify that the cows are being underfed, the post-grazing residual is a bit low or that the potential client needs to apply some nitrogen. He notes the engagement visit is where the potential client is "scenting the water". After the visit, they will decide if they want to employ him. The "freebies" provide the potential client with a sample of the sort of advice and knowledge the consultant can offer. He talks about driving around in the farmer's truck and providing "a few titbits here, a bit of ground bait there, a bit like fishing".

7.1.5.2.8 Post-farm inspection discussion

After the farm inspection, but sometimes during the latter phase of it, the consultant attempts to "nail them down". He sets out what he can offer and he finds out what they want from him in a professional capacity. This discussion may occur back at the house, in the cowshed or sometimes it occurs in the truck whilst out on the farm. The consultant stated that potential clients want to know what he can cover. He tells them what he can do, his strengths and areas that he is not strong in. He stated that this is important because it shows them that he is honest. However, he does make sure that any weaknesses he mentions are in minor areas and are not very important. This is another strategy, called disclosure, that helps him build rapport with the potential clients. It also shows that he has humility. It also makes him sound "mortal" and that he does not know everything. However, the consultant will cover such weaknesses by stating that he knows who to talk to in the industry if he does come across an issue in this area. He emphasises that he has good contacts within the industry. As such, during this phase he is selling himself and his networks within the industry. This indicates that he is not just selling himself, but also the networks he can access on behalf of a client.

The consultant also points out to the potential client how he views consultancy whilst also emphasising that it is the potential client's call as to what he wants to do. His advice is that the potential client should employ him for six to eight visits per year and no less than four. He states that if they want anything less than three or four visits per year, then they might as well not employ him. This is because he cannot guarantee that he will provide good solutions on every visit. However, he can guarantee that over the course of a year, a client will get "very, very good value out of me". As such, he is selling a package which comprises multiple visits over the year. The consultant believes that he can provide the best advice to his clients if he is out on their farms at regular intervals over the season. He will lose some potential clients who are very price conscious, but he believes the aim is to sell value for money. The consultant sets out his fee for each visit, but at the same time he sells the "value proposition" around this series of visits. For example, he might state that if he charged a client $6,000 for the year, this is only about 800 kg MS/annum and as such, he does not have to do much to ensure they get value for money. The regular visits provide a more pro-active approach. The consultant is

monitoring their progress and benchmarking them throughout the year. It also helps to keep the client motivated and focused.

Once the consultant has specified what he can offer the potential clients, he then asks them what they want out of the relationship. The consultant asks this question in a reasonably direct way to get to the point. He needs to know this so that he can "start clarifying what I should be honing in on". The consultant stressed that their answer may not be 100% accurate and there may be other issues they do not tell him about which he has to work out. He also pointed out that there may be issues with the farm business that they do not know they have or they believe are not pertinent to his visit. The consultant stressed that there may be a whole range of reasons why they "might not focus you totally on the bulls-eye".

Once the consultant has explained what he can offer the potential client and the nature of the consultancy arrangement, set out his fees and identified what they want from the business relationship, he then terminates the visit stating that it has been nice to meet them and that he will await their decision. Normally potential clients will talk to a couple of other people before making the decision. The consultant pointed out that he normally captures a new client because they are compatible and the potential clients feel comfortable with him, it is one of his strengths and this is enhanced because he can cover a range of personalities.

7.1.6 First visit post-engagement

Normally the potential client will ring the consultant within a week of the engagement visit and ask if he can engage his services. This initiates the first formal consultancy visit where the new client is charged for the services of the consultant. This section describes the goals of the visit and the process the consultant goes through for his first consultancy visit, post-engagement.

7.1.6.1 Goals for the first consultancy visit

The most important goal for a first consultancy visit is to retain the client. The other goals are designed to ensure this primary goal. Two of the most important outcomes of the first consultancy visit are to build a picture of a) the current farming system and b) where the clients want to be in the future. Much of the first visit is spent "picture building". The consultant is building a picture of the client, the farm family, the farming system and the farm business. The consultant also wants to build a picture of where the clients want to be in the future because this will drive his consultancy programme for these clients over the coming twelve months. The most critical question the consultant asks himself at the end of a first visit is "have you absolutely nutted out what his objectives are, what are his concerns, what are his issues, have you got them crystal clear, do you know what they are?" Another key goal for the consultant during this visit is to continue building rapport and developing a comfortable relationship with the client. This is because at this stage, he has developed limited rapport with the client and he needs to develop a high level of rapport to be effective as a problem solver. If he has developed a high level of rapport with the client, he is more likely to obtain access to sensitive information such as the client's financial situation and their most important goals.

One of the consultant's more important goals for the visit is to identify what services the client wants him to provide during his consultancy visits and what areas he wants him to focus on. If he fails to do this, the client will be disappointed and the relationship may terminate. Another important goal is to identify other areas that he could help the client improve and in which of these areas they are interested. The consultant stressed the importance of identifying what services the client wants him to provide during his consultancy visits. The

consultant must also leave the client with something useful at the end of the consultancy visit that will add value to his business. If he fails to do this, the client may terminate the relationship. Another goals the consultant needs to achieve when providing advice is to ensure that the client's "expectations" about a possible change to the farm system are clear and line up with reality. The consultant must ensure that the client does not have false expectations about the impact of a possible change to his system that he is considering. This is part of the consultant's professional approach, his personal integrity that he must at all times, have the client's best interests at heart.

7.1.6.2 Contact (Post – engagement visit)

The new client will contact the consultant after the engagement visit and state that they would like to engage his services. At that point, the consultant organises a date and a time for the first formal consultancy visit. He stated that it is important to do this when a new client first makes contact – "always do things while it's hot". The consultant is pleasant and he will make statements like "he is really looking forward to the visit", what he refers to as "the warm and fluffies" and this is just part of his normal rapport building process. He also asks the client if there is anything in particular the client wants covered that might require some preparation by the consultant. Normally, if the consultant has previously undertaken an "engagement visit" then he has a good

idea about what the client is interested in. The phone conversation is short and to the point, ensuring efficient use of time and by organising the visit then it means the consultant does not have to ring the farmer back.

The consultant stressed that if a client has contacted him and asked him to visit, that he is "three quarters there" in terms of securing a new client unless "you cock it up". This is because they have a need and have asked him out to help fulfil it. The consultant compared this to "cold calling" where he would have to create the need. If a client has identified that they want to make some change, then this is relatively easy for the consultant because he just has to help them implement the change. A cold call is totally different because the potential client does not perceive that he has a need or a problem. The consultant stated that he has never liked cold calls, he believes that it is much better if he seeks to obtain what he calls a "warm call", that is, where he is invited out. The first visit, the engagement visit is designed to secure his "warm call".

7.1.6.3 Pre-visit analysis and preparation

For most visits, the consultant does not do any analysis or preparation pre-visit in the office. However, for some visits he may need to do some preparation e.g. research into a topic the new client is interested in pursuing. Sometimes he may obtain further information about the client. Normally, this just happens by chance. Often, prior to the visit, he might meet someone and mention he is going to visit a new client. This individual might make some comments about the new client and the consultant will just listens to the response. Occasionally, he will ring up someone to find out about a new client. These are examples of the consultant using his networks to obtain further information about a new client.

The consultant tends to undertake his pre-visit preparation on the drive out to the farm, utilising otherwise unproductive time. He can also do this because he has the experience and expertise. The consultant admits that if he was a new consultant, he would do more preparation. He would think about what he wanted to cover, he would make some notes on the general farm information that he knew. He would also be thinking about the "big picture stuff" and the strengths and weaknesses of the business and the opportunities and threats it faced. He would also think about the fact that the client will want something to take away from the day. As such, if the consultant was a novice, he would make the preparation process more formal and he would spend more time thinking about the visit and planning it out.

7.1.6.4 Drive to the farm and observation of the area

The consultant tends to undertake his pre-visit preparation on the drive out to the farm, utilising otherwise unproductive time to develop a plan for the visit. He can also do this because he has the experience and expertise. Because he is also seeing farms all the time and discussing issues to do with the current season, much of what he does on one client's farm is transferable to another, further improving his efficiency. During the drive, the consultant also stated that he would draw on his local knowledge about the client as he often knows the farmer and has some information about their farming system.

The consultant will work through a mental plan of what he wants to cover during the visit, what he calls his "mental checklist". This includes the structure of the visit which includes the arrival and initial ice-breaking conversation, a preliminary discussion, a farm inspection and subsequent problem resolution phase. After the visit, there is a period of report writing and if required the consultant will analyse the client's accounts. There will be a follow-up visit, the date of which will depend upon how many visits per year the client has agreed to.

Around the basic plan structure, the consultant plans elements of the visit. This includes what he will cover during the ice-breaking conversation and also what issues will be of relevance to the client. The consultant will also go over what he learnt about the client during the engagement visit. He will also try to identify points that might be important for the visit. He will think about where the clients want to be in the future and what is important to them. If he has identified what is important to them he will also do a SWOT analysis in his head to identify the opportunities and threats facing the business. He will also be thinking about whether or not he needs to undertake further analysis. The consultant will reflect on the results of the benchmarking process he undertook with his 4 – 6 key performance indicators and consider what areas could be further improved on the farm. The benchmarking data helps the consultant identify where he might add value to the client's farm. The consultant also thinks about what the topical issues are for the time of year the visit takes place, because these will be important to cover during the visit (e.g. if it mid-spring then mating will be an issue). Similarly, he can infer a range of information from the farm's location. This helps him think about what is likely and unlikely to be an issue on a particular farm (e.g. if a farm is in an area with clay soils, wintering will be an issue).

The consultant contrasted this visit to his normal repeat visits where he knows the client well and has developed a good level of rapport. For such a visit, he does limited thinking and planning when compared to a visit to a new client. As such, a new visit requires a lot more cognitive effort than a repeat visit.

The consultant stated that "yes, I put a bit more effort into it". He also collects information about what is going on in the district from both farmers (clients and other farmers he knows) and other rural professionals, i.e. from his networks. This will occur through casual conversation where he might meet someone during the normal course of his day. For example, he might meet a DairyNZ CO at a meeting and ask how things are going in his area. With his broad social networks and client base, the consultant is very aware of what is happening in the areas he services. The consultant did point out that if he went into an area that he did not know, he would observe aspects of the district such as the amount of feed on farms and if herds were looking well fed or not. He would also talk to the client about the area in terms of how the season has progressed and what the issues in that particular area are. The information about what is happening in the district is useful for contextual information, but the consultant stated that it is not that important. He is more interested in what the situation is on the client's farm on the day of the visit. The contextual information is useful during a visit because most clients want to know how they are performing relative to other farmers in their district, so it helps build rapport. The consultant believes that a novice consultant would also be aware of what is happening in a district because they would be talking to people (farmers and other rural professionals).

7.1.6.5 Arrival at the farm and ice-breaking conversation

As with the engagement visit, the consultant will greet the clients upon arrival and then make them feel at ease, further building rapport with them. There is a period of ice-breaking conversation that normally takes place in the kitchen over a cup of coffee. However, it may occur at the cowshed or out on the farm depending upon the client. The consultant stated that he will normally spend a "bit of time chit chatting" about such things as the weather, the tough start to the season, the pay-out and how things are going on the farm. The time taken for this initial ice-breaking conversation depends upon the client, or if there are time constraints imposed on the visit, but normally it is of the order of 5 – 10 minutes or longer if it is undertaken over a cup of coffee. This is pretty typical for most visits and it is a preliminary period before the consultant gets down to business.

7.1.6.6 Preliminary discussion

After the ice-breaking conversation, the consultant will then move on to the information gathering phase. Often it starts with a general farming discussion about the current situation such as how the herd is performing. The consultant will then tell the client that he needs to refresh his memory about their farming operation and then begins to ask questions about the business and takes down field notes. He collects basic information about resources, production levels, debt levels, and the production system. The consultant does not undertake accounts analysis during this phase of the visit. Rather, he prefers to obtain the accounts and analyse them back in the office after the visit. As such, there is limited discussion about the financial performance of the farm until the second consultancy visit. The consultant also obtains information about the client's goals and objectives. He compares this to "peeling back layers" and stated that it can take a number of visits to obtain a clear view of a client's goals. The consultant is also checking the reliability of the information against that which he obtained during the engagement visit, another form of triangulation.

Once the consultant has collected basic data about the farm business, he then asks the client what they really want from his input into their business. To do a good job for a client, it is critical that he understand what the client requires of him. The consultant then reiterates the roles he can play and the services he can offer to the client. He identifies areas that he could help them improve in and he uses the way they respond to this, to gauge where he needs to put his input. The consultant stressed the importance of identifying what services the client wants him to provide during his consultancy visits. If he fails to do this, the client will be disappointed and the relationship may terminate. It also avoids the situation where he might put a lot of effort into investigating an area and find the client is not interested. The consultant will ask them what they want him to cover today and he will also ask them at the end of the visit if he has covered everything.

The consultant however, does highlight areas where he thinks the client could improve his business even if the client is not interested in these areas. This is part of his professional conduct which is to ensure that he has the client's best interests at heart. The consultant views these opportunities as seeds which might take root and germinate to develop into areas that he can pursue with the client in the future. The consultant stressed that the "best thing for a consultant is change" because this provides him with work. By the end of the discussion around the kitchen table, the consultant has a clear idea of the issues that the client wants him to investigate. The consultant stressed that although he can identify a range of other opportunities for improvement on a farm, he will always start with the ones that he thinks best meet the client's goals and objectives.

Towards the end of the initial discussion, the consultant stated that it reaches a point where the conversation is running down and there is a pause in the conversation. Normally at this point, the consultant will then suggest that they go on a farm inspection.

This is fairly typical for most clients, but the consultant has some clients where he never goes out onto the farm. For these clients, they want to focus on strategic issues and the discussion of tactical issues is of no interest. The purpose of the initial discussion is "picture building". The consultant is building a picture of the client, the farm family, the farming system, the farm business, and what the client wants in the future. During this phase, the consultant is also building rapport and a comfortable working relationship with the client.

7.1.6.7 Farm inspection

During the farm inspection the consultant observes the resources (land, labour and capital) including the infra-structure (shed, water supply), herd and pastures. He is also observing and questioning the client about what he is doing in terms of his management of the production system. He made the point: "two eyes, two ears, one tongue" to stress that during the farm inspection he spends most of the time listening to the client and observing the farm. The consultant stated that during the farm inspection he is "expanding" his knowledge about the client and the farm business. That is, he is building on the information he has collected about the client during the earlier phases of the visit. The consultant provides limited advice when he is driving around the farm, rather he makes brief comments about the state of the farm e.g. pasture cover levels, cow condition and so-on. He may mix this up with some social conversation such as about the rugby. The consultant tends to save his comments until when they return to the house for the problem resolution phase. He stated that he would "not make sweeping recommendations until he has seen the whole lot".

By the end of the farm inspection the consultant will have achieved a number of outcomes. Firstly, he will have a good picture of the client, the farm family and the farming system. In particular, he will have a good understanding of the client's production system, the amount of dry matter the client is harvesting, the amount of supplements that are being used and so-on. The consultant will have yet to develop a clear picture of the financial state of the business. To do this, he will need to take away sets of financial accounts and undertake some analysis on them. At the end of the farm inspection, the consultant will have identified opportunities for the client in line with his goals and objectives and in relation to the issues. The consultant will have also identified other opportunities that are different from the issues that the client wanted to discuss.

7.1.6.8 Problem resolution

After the farm inspection, normally the consultant and client return to the house for a final discussion. The consultant then summarises his key points about what he has seen during the farm inspection for **both** himself and the client. The consultant normally spends 5 – 10 minutes describing the client's production system and the performance levels that the system is achieving. This information will be placed in his first letter to the client and the consultant views this as his base data that describes the client's farming system prior to any interventions initiated through his advice. In effect, he is benchmarking the farm at a point in time prior to his involvement. The information will include effective area, cow numbers, total milksolids production, production per cow and production per hectare, stocking rate, feed inputs, number of heifers and so-on. This information does not cover everything about the farming system, but it is what the consultant calls his "steelwork" or his "framework" or the "farm system". Once the consultant has outlined the key elements of the production system to the client, he **verifies** that this information is correct. As such, the consultant's first activity post-farm inspection is to set out the current situation on the farm. He reiterated that this is an important task during this phase of the visit and that he does this on all visits.

Once the consultant has discussed the current situation on the farm, he then works through his recommendations for improving the farm system. This includes the issues the client has asked him to investigate along with other issues the consultant has identified through his diagnosis. The consultant stressed that during this phase it is critical that he is very clear about his recommendations (e.g. "you don't want to be waffley, that's for story writers and people who love English".). For example, he might state that "I think there is an opportunity in relation to pasture harvested and the cost of milk production". The consultant will justify his diagnosis with evidence.

The consultant then specifies areas that need to be considered if the client is to improve performance. For example, he might state: "We need to look at pasture grown which includes pasture species, composition, drainage and soil fertility. We need to check all of those things". Often he will state that this is what he would do if he was the owner and he sets out his points "bang, bang, bang, bang". He then subtly repeats these points to the client to reinforce what he has said. In some instances the consultant has collected all the data he needs to determine where the weaknesses are, but in other cases he will tell the client that he needs to collect and or analyse more data on specific areas during subsequent visits. The consultant also discusses his recommendations with his client before the client makes a decision on whether or not to make the change.

The consultant tells his clients that he does not expect them to take on all his advice. He states "it is your business and I will not get upset if you don't do it" [adopt his advice].

However, the consultant does ask that they are courteous enough to listen to his advice and the reasons behind it before they make a decision. He also tells them that for the opportunities he has identified that they are not interested in, he will continue to bring these up over time. In this situation, he requests that the client not to ask him to back off the idea because he genuinely has their interest at heart. The consultant admits that for his sanity and motivation it is critical to understand that clients will not adopt all of his advice. He stated: "And so I don't worry, otherwise I would be in a white jacket by now". During the discussion session, the consultant will also write up his field notes while the client is making a cup of tea. These notes are hand written and would cover about a page.

At the end of the visit, the consultant will ask the client if they have covered everything to ensure the topics the client is interested in are covered. The consultant also stressed that he must leave the client with something of value. He stated "you don't walk off without ticking some boxes". The consultant stated that by the end of the visit "you've actually got to leave them with something". This may be technical information or it may a longer-term plan of where they might take the business. The consultant will also have "**crystallised**" what the **consultancy package** for the new client will look like. This can range from four to twelve visits per year. Most of his clients choose either a monthly or two monthly visit schedule. Once the consultant has sorted out the frequency of visits that the new client would prefer, he then organises the date and time for the next visit. The consultant stated that the first visit is about framing up the problems or issues facing a client and identifying where he can take the client in terms of improving the farm system. He uses this visit to set out the work he can do with the client during his repeat visits over the next year.

7.1.6.9 Report writing and further analysis

On the drive home, the consultant sets out the content of his report using a Dictaphone in order to utilise non-productive time. The audio tape is placed on the cloud and picked up by a typist at the firm who prepares the report and sends it back to the consultant for proof reading. The consultant also includes in the letter the date and time for the next visit and asks the client to contact him if he cannot make the appointment. The consultant stressed that this was a critical component of the letter because if he did not do this, about a third of his clients would not get back to him about a follow up visit. This is a function of their personality, because even clients he has dealt with for years fall into this category. This ensures he has a follow up visit and it is scheduled into his diary.

If the client is interested in improving profitability, the consultant will offer to analyse his accounts back at the office. Normally he will calculate the cost of milk production based on farm working expenses and adjusted for changes in cow numbers and feed inventory over the year. He also analyses their balance sheet to calculate a range of ratios associated with liquidity, profitability and solvency. The consultant has a range of benchmarks that he will work through with the client's accounts and he will use these to identify potential problems or opportunities. The consultant stated that "So there are a whole lot of numbers that I know [financial benchmarks] and that comes from keeping myself up to date". Once he has completed the financial analysis, the consultant will include the key points from this in the letter to the client with the aim of discussing these points with the client at the follow-up visit.

The consultant writes a formal report for all of his visits. He stated that this evolved as part of his professional approach; he likes to provide each client with a written report after a visit. He does know of other consultants that just provide a hand written sheet at the end of the visit. The consultant is considering setting up a template where he can just cut and paste material to further reduce his time input. For farmer clients, the consultant stressed that if he wrote any more than three pages, his clients would not read it. He normally uses about six key headings to summarise the farm system and then he has recommendations and actions which are written out as bullet points. He uses headings and sub-headings so that it is easy for him to find information if he has to go back to reread the report. A copy of the report is retained and this acts as his file on the client which he can reference as required.

7.1.6.10 Cementing the relationship post-visit

The consultant has other practices post-farm visit that he uses to cement the relationship. He may have been considering other opportunities that the client has and when he is driving between farms, he may ring the client and discuss these with him. He may introduce the topic by saying something like: "While I was driving the other day I was thinking about you and your farm". The consultant would then discuss the opportunity he had identified. He believes that this process builds further rapport with the client and "cements the relationship". The consultant stressed that when he develops a relationship with a client, "I always go for long-term relationships". To do this, he has to be very clear about the clients goals and objectives and the issues that he is interested in. He also makes the client aware of other issues that he may not have thought of that could provide useful benefits and this tactic also helps cement the relationship. The consultant stated that much of consultancy is about "managing the relationship".

7.1.6.11 Follow-up visit

The last thing the consultant wants to do is to undertake a first visit and then have no follow up visits after that. The focus on the repeat visits is to help the client implement the opportunities the consultant has identified. Farm businesses are dynamic and there are always opportunities emerging. He gave the examples of a son returning home, or a client taking on a sharemilkers. The consultant's aim is to have a follow-up visit because he is selling a consultancy package that comprises multiple visits. As such, he often has further data that he will need to collect at the next visit and some of the options he identifies with the client may take several visits to put in place. For this consultant, every visit is followed by a follow-up visit because this is how he operates. During the first follow-up visit, the consultant will set out his findings from his financial analysis if the client is interested and then work through these with him.

7.1.7 Problem solving framework

Rapport building and problem solving are important processes within the consultant's problem solving framework. Rapport building is particularly important for client recruitment when the consultant is building a network of farmers who are not clients and during the engagement visit because the primary goal of the engagement visit is to secure a new client. Rapport building is also important during the first consultancy visit because the relationship is in its infancy and limited rapport exists at that point. Normally the client is involved in two visits to a new client, the engagement visit and the first fee-charging consultancy visit that occurs after the engagement visit if the client decides to take on the services of the consultant. As such, some of the steps in the problem solving process, but not all, occur across the two visits. Rapport building also occurs before the engagement visit, because it is essential for ensuring an initial invite to a potential client's property. During the engagement visit, the steps in the problem solving process of information gathering, and problem identification are undertaken to a limited degree, but the other steps associated with developing a solution to the client's problems is not undertaken at that stage. All of the steps in the problem solving framework are undertaken during the second visit.

7.1.7.1 Rapport building

Although not a focus of this study, rapport building was highlighted as a critical aspect of the consultancy process during the first two visits. Rapport was built with a potential client to achieve a number of goals. First, it was used to secure an engagement visit. Second, it was used to secure and then retain the farmer as a fee-paying client. Third, it was used to develop a comfortable and relaxed working environment such that the client would freely provide sensitive information that the client required for effective problem solving. During this early phase of the client-consultant relationship, the two former goals were more important than the latter goal. The consultant stressed that a novice consultant required good interpersonal communication skills and that these were more important than analytical skills. The consultant believes that the former are much more difficult to teach than the latter. As such, he believed that it was important for consultancy firms to recruit novice consultants with good interpersonal communication skills.

The consultant has a range of clients and he ranks them A, B, or C. The most important clients, he wants to make into a friend. He stated that they might not be a close friend, "but you will be intimate" (Figure 12). The consultant pointed out that it is difficult to fire a friend. As such, he treats them as a friend. He enquires about their children and gets involved with the family. These actions improve his chances of retaining a client. The consultant stressed that there is not the risk that he will lose his objectivity because "at the end of the day, you've still got a job to do. His most difficult clients are the farmers who want him to tell them what they want to hear. He then separates what they want to hear into two categories, a grey area that have little impact on the farm business or there is no right or wrong answer, and areas that are important and will impact on the farm business. For the former, he will let them do what they like, but for the latter, he will tell them that he does not agree with their ideas because of the impact it will have on their business. The consultant has to be very professional with the advice he gives a client and he has to make sure his advice is objective. The consultant also stressed that follow-up is important and it also helps build rapport.

The consultant stated that the clients need to feel that he has empathy with their situation, and that he is not just there to make money. It is important that he builds empathy and rapport. As such, the consultant will go to some of his clients' children's 21st birthdays and to family weddings. The consultant agreed that the "onion ring" analogy (Figure 12) is quite good and he tries to move into the inner circle or relationships with important clients. However, he did note that that among his clients he has farmers who are his friend through to people who just see him as someone doing a job for them. As such, within his client portfolio, he has varying degrees of relationships and he believes that is just life. However, he can build rapport with his clients and this involves "going the extra yard", ringing the client up to see how a change went, following up on something they showed an interest in. These actions "show that you care", they "build merit points". The consultant has a range of activities he can undertake to "go the extra mile" for a client and build a good relationship with

them. However, he chooses the clients he does this for. Some clients "would drop me tomorrow" so he does not put effort into these individuals.

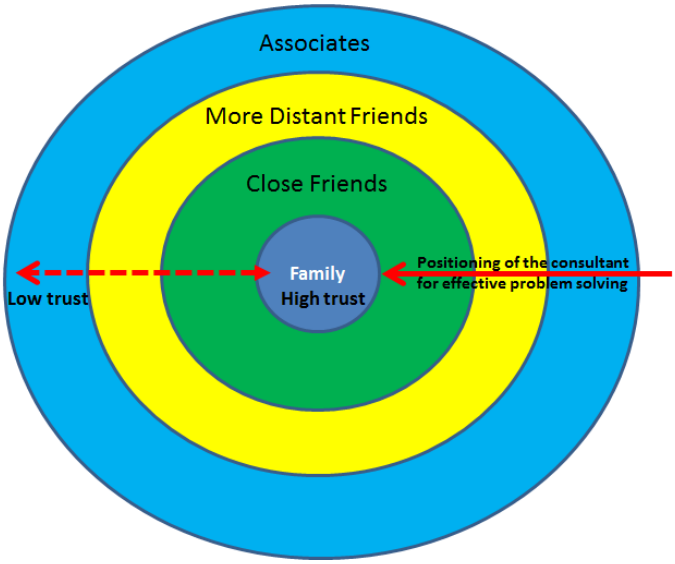

Figure 36 Positioning in the "relationship circle

7.1.7.1.1 Rapport building during a visit

During first contact on the phone, the consultant is pleasant and he will make statements like "he is really looking forward to the visit", what he refers to as "the warm and fluffies" and this is just part of his normal rapport building process. The consultant stressed that when he greets the clients upon arrival at the farm, he always sounds cheerful and happy, even if he has had the worst week possible. He always maintains a positive outlook during a visit to a client. His reasoning for this is that people want to be around happy and positive people.

There is an initial ice-breaking session that may involve a discussion about the weather, the pay out, or what is happening in the industry. During this phase, the consultant is developing rapport with the potential client or as he stated "developing dialogue". He is also trying to get the clients to relax. He will use humour to do this, but his advice is that if you cannot do this naturally, don't. He normally has a few one liners that he uses during the early part of the visit. This is one of his strengths and he knows that he can use humour to good effect to build rapport. He stated that he does not go onto the farm and say "good day and what do you want?" Instead he builds rapport talking about things they know and things with which they are comfortable. The consultant will identify the individual in the decision making team who has the power. His key "golden rule" is not to upset this person during the visit.

During the preliminary discussion the consultant asks these general questions about the farm because it is "ground breaking", it helps build rapport. This is because it is information they know and they are relaxed and can talk about it. The client is not too worried talking about "technical stuff" because these are not "sensitive topics". However, a potential client may be sensitive about their financial position or their most important goals. To capture this information, he has to develop a good rapport with the potential client and this might not occur until after several visits.

The consultant believes that the farm inspection is important for building rapport because farmers are most comfortable out on their farms. On the farm inspection during an engagement visit, the consultant provides what he calls "freebies" or free advice. This demonstrates the consultant's technical competence and builds trust. The consultant has also found that clients like to know what is going on in their area and how their performance compares to others in the district. Providing this information and also information about emerging issues builds rapport with the client. Again, this demonstrates his technical competence and enhances his credibility.

During the problem resolution phase, the consultant tells the client what he can do, his strengths and areas in which he is not strong. He stated that the latter is important because it shows them that he is honest. This is another strategy, called disclosure, that helps him build rapport with the potential clients. It also shows that he has humility and makes him sound "mortal" and that he does not know everything. During the problem resolution phase, the consultant ensures that he leaves the client with something that will add value to his business. He is also careful about providing advice around sensitive topics. The consultant will provide a clear explanation of the problem area and the actions the client needs to undertake to improve the situation. This demonstrates his technical competence. The consultant also highlights problems that the client is not interested in, but are important in terms of their impact on the farm business. This demonstrates his personal integrity to the client of having their best interest at heart. Similarly, if the client wants to make a change that is not profitable, the consultant will identify the cost to the business of making such a change.

The consultant pointed out that he normally captures a new client because they are compatible and the potential clients feel comfortable with him, it is one of his strengths and this is enhanced because he can cover a range of personalities. Compatibility is critical in the consultancy role. The consultant stated that he does not chase a potential client hard. He wants to capture a new client because it is a source of pride that he does not want to lose a potential client to another consultant. However, he has a large client portfolio, so it is not a major concern if he does not capture a new client. The consultant did point out that when consultants "chase" a potential client "too hard", they tend to put the farmer off-side. When this happens, it suggests to the consultant that that individual does not have good people skills and he is not picking up the feedback from the farmer.

7.1.7.2 Problem solving process

The problem solving process used by the consultant can be usefully separated into the eight steps identified in the literature of: gather information, identify the problem, determine alternatives, analyse alternatives, choose alternative, plan implementation, implementation and evaluation. The consultant spent most of his time during a first consultancy visit on information gathering and diagnosis. Limited time was spent on the other steps in the problem solving process. The following sections will describe how the consultant undertakes each of these steps in the problem solving process.

7.1.7.2.1 Information gathering

Because the consultant undertakes an engagement visit to secure the client before undertaking his first consultancy visit, information gathering begins at the initiation of the engagement visit and continues through that visit and his first fee-charging consultancy visit. The information collection process for each visit type is described in the following sections.

7.1.7.2.2 Engagement visit

During the engagement visit, the consultant collects information using a range of methods. This involves an informal or semi-structured interview process, observations and documents (soil test results, milk dockets, accounts etc.). The interview process is relatively unstructured and is more like a conversation as opposed to a formal interview. The data that is collected varies over the phases of the visit (Table 11). The consultant collects limited information over the phone other than the potential client's name and their location. He does not collect any further information during the pre-visit analysis and preparation phase. Similarly, during the drive to the farm he does not collect information about the district. This is because he drives through the district every day and obtains information about what is happening in the district from his farmer and rural professional networks. He stated that he would collect information about a district if it was a new district he had not been to before. Upon arrival he collects information about who the key decision makers are on the property, their responsibilities, who holds the power from a decision making perspective and who is interested (or not interested) in the farm business. This information is obtained through a combination of observation (who is at the meeting and who is actively engaged) and through general conversation.

After a period of ice-breaking conversation the consultant then asks some "general information gathering questions" about the farm. This might include: farm size, cow numbers, milksolids production, supplement use, the size of the cowshed, whether or not they have a runoff, the type of system they are running and so-on (Table 11). The consultant obtains some information about the financial situation on the farm (e.g. debt levels). However, limited financial information is collected during the engagement visit. He also collects information so that he can calculate the 4 – 6 key performance indicators that he assesses during the engagement visit. He stressed that he does not do a lot of analysis, because he may not get the job. However, the key performance indicators he estimates are farm size, number of cows milked, production per cow and production per hectare and he collects information about the amount of feed imported into the system

so that he can determine their farming system (DairyNZ 1 – 5). The information collected during this phase will give him an understanding of their farming system.

The consultant also finds out what is important to the client, their goals and objectives and where they want to be in the future. He stressed that it is often difficult to obtain information about all of a potential client's goals and objectives. Often their most important goals are the most difficult to ascertain. He compared this to peeling back the layers from an onion and that it may take several visits to identify them.

During the preliminary discussion phase, the consultant is also trying to establish what the client wants him to do for them. He can provide them with a wide range of services, but he needs to know what they specifically want from his involvement with their business. He said that "he does not want to be barking up the wrong tree and providing advice on something they are not interested in".

Table 14 Information collected during the different phases of the engagement visit

Phase of the visit	Information collection
First contact	Name of potential client Location of farm
Pre-visit analysis and preparation	None
Observation of the district	Feed levels and state of stock[6]
Ice-breaking conversation and preliminary discussion	Potential clients • Power relationships • Interest in the business • Roles • Personality • Farm family structure • Goals and objectives • Accuracy of information • Issues they want addressed Production system • Farm size • Use of a runoff • Milksolids production • Stock numbers • Calving date and drying off date • Supplementary feed use including grazing • Shed size • Fertiliser policy • Soil test data Financial information • Debt levels
Farm inspection	Client • Goals and objectives • Issues they are interested in Farm resources • Pastures • Herd • Replacements • Soils Infra-structure • Milking shed • Subdivision • Races • Water supply • Effluent system • Drainage • Irrigation • Feed pad Management of the production system • Grazing management • Nutrition of the herd • Mating management • Use of supplementary feed
Post-farm inspection discussion	The issues the client wants the consultant's assistance with

On the farm inspection, the consultant is observing the quantity and quality of the farm resources and infra-structure (Table 11). This includes the herd, the replacements, the pastures and soils. The consultant also observes the state of the milking shed, races and subdivision, water supply, effluent system and feed pad. For some farms, he will also be observing their drainage system and/or irrigation system. During the farm

[6] Only collected if the consultant is not familiar with the district.

inspection, the consultant asks the farmer about how he manages his production system. This will include the management of his pastures, the nutrition of the herd, mating management, the rearing of replacement stock and so-on. Limited information is collected during the post-farm inspection discussion (Table 11). The consultant collects information about what the client wants from him in a professional capacity, that is, what issues would he like the consultant to investigate. He asks the client this in a rather direct fashion because this information is critical if he is taken on as a consultant after the engagement visit.

7.1.7.2.3 First consultancy visit

During the first consultancy visit, the consultant uses an informal or semi-structured interview process, observations and documents (soil test results, milk dockets, accounts etc.) to collect information about the client and farm business. Because of the large amount of information the consultant can gather on the client and his farm business, he uses a planning process during the drive to the farm to constrain his information collection process (Figure 13). He retrieves knowledge about seasonal issues that might be important for that time of year and uses this to determine the information that he needs to gather to assess if seasonal issues are a problem on the client's property. He also retrieves knowledge about district issues (e.g. wet soils, dry summers) that might be important given the location of the farm and uses this to determine the information that he needs to gather to assess if district issues are a problem on the client's property. He retrieves knowledge about the issues the client said he was interested in during the engagement visit and uses this to determine the information that he needs to gather to assess if these issues are a problem. Finally, the consultant retrieves knowledge about his assessment of other issues facing the client that he identified during the engagement visit and uses this to determine the information that he needs to gather to assess if these issues are a problem.

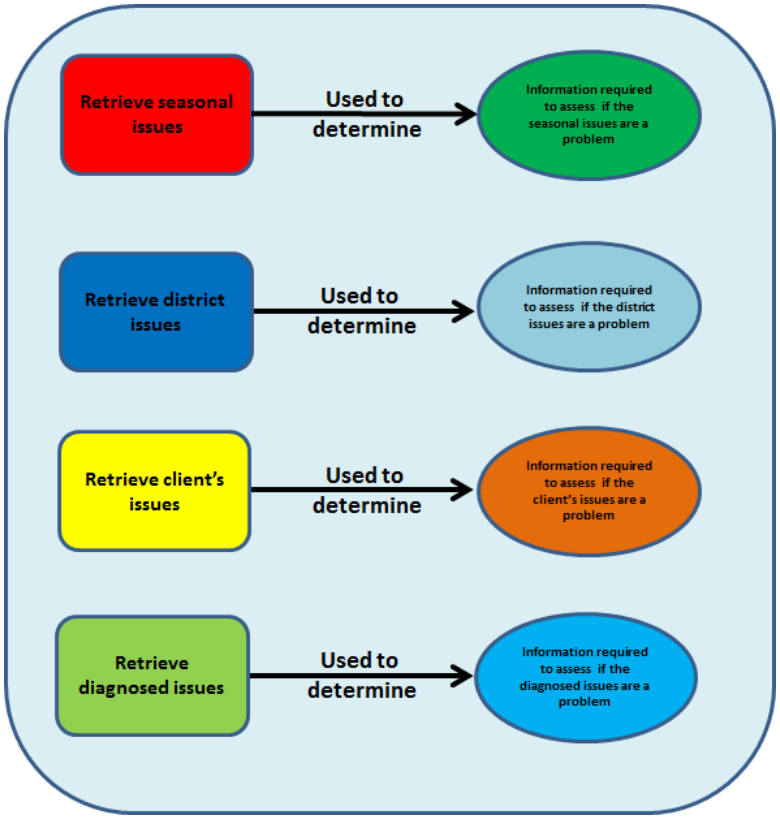

Figure 37 The process used by the consultant to focus information gathering on the first visit

The data that is collected varies over the phases of the visit is shown in Table 12. When the client first contacts the consultant, he only collects information on what issues he wants covered during the visit. This minimises his time on the phone and he believes he is better obtaining such information during the visit rather than over the telephone. The consultant may ring a contact prior to the visit to obtain additional information about the client, but this rarely happens. He may also obtain information about the client from his informal networks, but this occurs during chance meetings, not by design.

During the preliminary discussion, the consultant collects the same information that he collected during the engagement visit which is mainly about the farming system, resources, production levels, debt levels and the client's goals and objectives (Table 12). During this process, he is checking the data against the information he collected on the previous visit to both reinforce and triangulate the information. The consultant asks the client if he can go through his farming system in detail so that he has a really clear picture of it. The consultant writes this information down in his notebook as a reference point. The consultant collects a wide range of data during this session and he calls this his "base data set". The consultant does not go over the client's financial accounts information during the first formal visit. This is because he would have to analyse them whilst the client sat around doing nothing. Instead, he obtains the accounts at the end of the visit and analyses them back at the office. It is not until the subsequent visit, that the results of the accounts analysis are discussed with the client. The consultant did state that for a new consultant, a template might be useful to ensure that they collect the required information and it could provide check points for them to work to.

Table 15 Information collected during the different phases of the first consultancy visit

Phase of the visit	Information collection
Contact	Issues the client wants discussed
Pre-visit analysis and preparation	Information about the client[7]
Observation of the district	Feed levels and state of stock[8]
Ice-breaking conversation and preliminary discussion	Clients • Power relationships • Interest in the business • Roles • Personality • Farm family structure • Goals and objectives • Accuracy of information • Issues they want addressed • Perceptions of limitations • Perceptions of issues • Interest in other issues identified by the consultant Production system • Farm size • Use of a runoff • Milksolids production • Stock numbers • Calving date and drying off date • Supplementary feed use including grazing • Shed size • Fertiliser policy • Soil test data Financial information • Debt levels
Farm inspection	**Focus on information relevant to the client's issues** Client • Goals and objectives • Confirm the issues they are interested in • What the limitations are for an issue • What the opportunities are for an issue • Management capability • Attitudes • Accuracy of information • Agreement with consultant's diagnosis Farm resources • Pastures • Herd • Replacements • Soils • Etc. Infra-structure • Milking shed • Subdivision • Races • Water supply • Effluent system • Drainage • Irrigation • Feed pad

[7] The consultant may telephone a contact and ask about the client, but he rarely does this. Often he will meet a contact at random and mention the visit and the person he is talking to may provide information about the client.

[8] Only collected if the consultant is not familiar with the district.

	• Etc. Management of the production system • Grazing management • Nutrition of the herd • Mating management • Use of supplementary feed • Etc. The client's use of technologies in key areas • Pasture production • Etc.
Problem resolution	Verification of the information about the production system Verification of the issues the client wants the consultant's assistance with Verification that the consultant's diagnosis is correct Verification that the client has "buy in" to resolving an issue Information about sensitive issues Financial accounts (obtains a physical copy)
Report writing and further analysis	Financial information from the accounts • Liquidity • Profitability • Solvency

The consultant stated that he has to get "closer and closer" to the client to identify his most important goals and only when that happens does he begin to understand what drives them. This highlights the importance of rapport in relation to information collection about goals and objectives. A high level of rapport will not happen on a first or second visit, because it takes a long time to develop this. The consultant may be still finding out about some of a client's goals four to five years after the first visit. One of the most important pieces of information the consultant aims to collect during this visit is where the client wants to be in the future. This will then drive his consultancy input into the client's business.

The consultant identified that some clients will provide all the information he requests and others may not. However, he does stress to the client that the more information he can be provided with, the more effective his problem solving will be. However, this is their decision and he will work within any information constraints they impose. Often clients do not want to provide financial information. However, the consultant will continue to ask for this information over subsequent visits because he believes it is important for understanding the business. Eventually, most clients provide this information.

Once the consultant has collected basic data about the farm business, he then asks the client what they really want from his input into their business (Table 12). To do a good job for a client, it is critical that he understands what the client requires of him. The consultant also reiterates the roles he can play and the services he can offer to the client. The consultant stated that a key skill is to be able to quickly identify what the issues are on the property for a new client without collecting large amounts of data. The consultant uses four approaches to identify the key issues facing the client. First, he knows what is likely to be an issue at the time of the visit because he has picked this information up as he travels around the area working and visiting farms (around ten per week). Second, he knows the likely issues that are associated with farms in that particular area (e.g. wet soils, dry summers etc.). Third, he asks the client if there is anything that he specifically wants covered during the visit. Fourth, the client uses his 4 – 6 key performance indicators to identify possible issues for the client.

The consultant stated that asking the client what are the key issues for the business is a key question, and something a novice consultant should always ask. The client may identify some key issues or he may state that he does not have any key issues. Once the consultant has identified the issues the client is interested in pursuing he then identifies other areas that he could help them improve in and he uses the way they answer to gauge where he needs to put his input. For example, if he suggests he can improve their profitability and he receives a muted response, this tells him it is not an area the client is interested in. In contrast, if he receives an enthusiastic response, he will explore this area further with the client. The consultant stated that he also monitors the client's body language when assessing whether or not he might be interested in pursuing a particular area. It is their reactions to his suggestions that he is monitoring (e.g. "… and seeing if it gets gobbled up or gets left behind"). The consultant stated that it can be difficult to identify the client's key issues. However, this information is then used to focus subsequent information collection during the visit because an important priority for the consultant is to address the issues that are important to the client. As such, this session at the end of the preliminary discussion is critical for focusing the information collection during the remainder of the visit. It ensures the consultant uses his time effectively and does not collect information that is of little relevance to the client. The consultant stressed that although he can identify a range of opportunities

for improvement on a farm, he will always start with the ones that he thinks best meet the client's goals and objectives. Although the discussion around the kitchen table identifies the issues the client is interested in, he is never constrained by the outcomes from this preliminary discussion. However, the consultant maintains an open mind and is aware that there may be other issues of importance that the client has not mentioned or is not aware of. The consultant stated that "he'll give you areas where he wants to focus, but you never just focus on those".

The consultant has two objectives during the **farm inspection**. The first is to collect basic information to help "build a picture" of the farming system. This will include collecting information that will help him further clarify the client's goals and objectives (Table 12). The second objective is to collect information about the issues or areas that the client wants him to investigate. The consultant stated that during the farm inspection he is "expanding" his knowledge about the client and the farm business. That is, he is building on the information he has collected about the client during the earlier phases of the visit. He is also checking or verifying information he has previously collected. The consultant also pointed out that his visits are not rigidly structured. He does not cover one topic area and then move onto another topic area. The information collection process is less structured or what he calls "graded and integrated". As such, the consultant has to sort, triangulate and integrate the information as he collects it.

Once the consultant confirms what the client is interested in, he will then delve deeper into these areas during the farm inspection, it focuses information gathering. For example if the client wants him to improve per cow production he will consider their calving date, the calving spread, the drying off date, the decline in cow numbers over the lactation, the pattern of milksolids production, the level of peak milksolids production. From this information, he will identify "where they are strong and where they are weak". This will identify areas where he can improve the per cow performance. The consultant provided another example of where the client was interested in improving profitability. In this situation, he would go through a range of indices that he would use to identify areas for improvement. However the consultant stated that if someone is starting off, using something like the whole farm assessment sheet is a useful way to gain information until the novice has developed his or her skills. He also suggested only doing some blocks within the whole farm assessment sheet at a visit and then doing others at the next visit. A key skill for the consultant is being able to quickly identify what the issues are on the property for a new client without collecting large amounts of data. The consultant stated that there are two things that help him do this. First, he knows what is likely to be an issue at the time of the visit and second, he asks the client if there is anything that he specifically wants covered during the visit.

7.1.7.2.4 Problem identification

As the consultant gathers information he is processing it in a number of different ways for a number of different purposes. First, he is processing information to build a picture of the client, farm family and farm business. Second he is processing the information to diagnose the problems facing the client. This information is also processed to help develop and tailor solutions to the client's problem. Picture building and diagnosis occur in **tandem** and the consultant uses a range of techniques to process the information. These include triangulation, benchmarking and comparative analysis and classification. These processes also help drive or focus the consultant's information gathering. These processes are discussed in the following sections.

7.1.7.2.5 Picture building

To build an accurate picture of the client, farm family and business, the consultant uses a process of triangulation. He also uses comparative analysis and benchmarking to compare the client's resources, farming system, management and performance to industry standard data and his own benchmarks. This process, along with the collection of verbal and visual cues about the farm family, is used to classify these elements to help the consultant build a picture of the client, farm family and farm business. The classification process helps locate the client, farm family and farm business relative to other clients. It also forms the basis for the diagnostic process the consultant uses.

The consultant admitted that he classifies his clients, but he does not have explicit boxes that he ticks to do this. He tries to work out what they are trying to achieve, what drives them, what excites them and what motivates them. The consultant is classifying the clients in terms of who has the power in terms of decision making, their interest in the business and their roles within the business (Table 13). He is also classifying the clients in terms of age group and personality. The classification process for these areas is based primarily on visual and verbal cues. The consultant also classifies clients on the basis of the "closeness" of his relationship with them. Some clients are very open, others are protective of their aspirations and others will only allow him a certain level of "closeness", but no further. The consultant can classify his clients on the basis of "closeness".

The degree of "closeness" he has with a client dictates the degree to which he understands their goals and objectives. As such, he stressed that "you've got to really know where you are in the **relationship circle**" (See Figure 12). The consultant has indicators of where he is in the relationship circle. These are based around who the client seeks advice from, who they listen to and whose advice they take. The consultant gave the example where a client had sought advice from a seed rep on the sowing mix for a new pasture. The consultant provided his advice and the on the next visit asked the client what he had sown. The client had gone with the seed reps advice which told the consultant that he was not the "most trusted advisor" when it came to pasture mixes.

Table 16 Classification areas used by the consultant

Classification Area	
Clients and farm family	
	Power in decision making Interest in the business Roles in the business Age group Personality type Degree of openness What motivates them (Strategic and/or tactical focus) Accuracy and reliability of information provision Management capability by area • Pasture management • Herd nutrition • Mating management • Etc. Attitudes to key areas of management
Quality of resources	
Quality of Infra-structure	Herd Replacements Pastures Soils Etc. Milking shed Subdivision Races Water supply Effluent system Drainage Irrigation Feed pad Etc.
Production system and physical performance	
	Farm size Herd size Farm system type (DairyNZ 1-5 Classification) Milksolids/ha Stocking rate Milksolids/cow Farm state on the day of the visit Etc.
Financial performance	
	Liquidity Profitability Solvency • Debt levels Etc.

The consultant classifies his clients in terms of what motivates them (Table 13). He uses this information to focus his visit and tailor the advice he gives to a client. For some farmers he will focus on the tactical technical advice because that is what they are interested in. For other farmers that are more "visionary", he will focus on the potential of the business and where he sees the opportunities. The consultant talked about clients who are "helicopter people". These are clients who are not interested in the detail of farming, they are interested in the "big picture". If he classifies a client as a "helicopter person", he will not talk to them about detail such as

grazing residuals and so-on. If he did this, that client would soon be bored. He stated: "So you have got to fit your advice to the kind of person, it's about analysing people". This is why he stressed that consultancy is "half to two thirds about people and managing people, finding what excites them and what doesn't". He stated that he has seen a number of very good technical people who have made poor consultants because they don't have the people skills.

The consultant's helicopter person is a person that thinks strategically. These are often his corporate clients and he knows that there is no point talking to these people about tactical issues. They want to know what is happening in the external environment. This could include what is happening with farm prices and should they be expanding their operation. At the other end of the spectrum, the consultant has clients that are focused at the tactical and operational level. Their interest is around their grazing management and they want to know things such as should they be on a 30 day or a 50 day round or what does the consultant think of their feed wedge. These farmers are also looking for reassurance and the consultant stressed that one should not under-estimate the importance of this for some clients because it has value for them. As such, for this type of client, the consultant is validating their tactical management practices. Other clients want a combination of strategic and tactical/operational advice. The consultant pointed out that his clients manage across three of the fields of management (production, finance, human resource management), so there are a range of areas they might be most interested in without considering the level (strategic, tactical, operational). He stated "But you have to analyse who they are, what they are after, what spins their wheels, what do they really want. If you don't get that, you are going to miss the boat probably". This highlights the importance of gaining an understanding of the client and it is central to ensuring a long lasting professional relationship.

The consultant also classifies the clients in terms of their accuracy and reliability of information provision, management capability and attitudes towards key areas of management (Table 13). The former is assessed using triangulation procedures. The consultant may assess the accuracy of the client's information by comparing information on a temporal basis (e.g. between this visit and the previous visit or between information provided at the start of the visit and information provided later in the visit). He may also assess the accuracy of the information by comparing information provided verbally with information collected from observations (e.g. grazing residuals). Alternatively, he may ask the client about milksolids production levels per cow, per hectare or per cow per day and then obtain information about total milksolids production and calculate the indices to see if they are the same as the client's estimates. On this basis the consultant classifies the client as a provider of accurate information or alternatively someone who often provides inaccurate information. He has found that farmers often exaggerate or "bend the truth" when providing information. The between-visit triangulation process also plays other roles in terms of reinforcing previously collected information and of highlighting new information that was not collected during the previous visit. The latter adds to the consultant's "picture" of the farm family and farm business. The consultant is also triangulating whether the areas the client said they were interested in really are areas of interest. Often to test this, the consultant will recommend actions the client needs to take to improve this area (e.g. enter their accounts into Dairybase) and then observe their response to his recommendation. Again, this is done using verbal and visual cues.

Throughout a visit, the consultant is continually checking or verifying information that he has previously collected. As such, triangulation is an on-going process for the consultant. He stressed" "you've got to have cross-references and checks. Don't believe everything that you are told". The consultant believes that a key attitude a consultant must have is "never be a believer, always be a slight doubter". As such, he is continually verifying the veracity of the information he is obtaining from a client. Some clients are reliable in terms of the information they provide and other clients are not. He stated: "And you know this guy [client] does not get his knowledge or his facts always right so you are always checking, you have to keep checking. Some people are very sharp and you know some people I will believe. What it is, they have earned my trust of being correct". The consultant also emphasised that because of his experience, he often intuitively picks up when something he is told does not seem right. This would be difficult for a novice consultant to do because he would not have the experience. However, the consultant stated that for a number of areas, calculating some basic numbers may identify if there is a discrepancy, so a novice consultant could have a set of basic calculations he undertakes as one means of cross-checking the information he receives from the client. He stressed that most of these calculations are relatively simple and for some he might need a calculator to undertake them.

The consultant stated that the clients that do not provide accurate information are not deliberately providing mis-information, rather they either don't know or they are what the consultant refers to as "sloppy", they do not make the time or effort to gather accurate information. As such, a client may provide inaccurate information for two reasons. The first is because they did not know the information or possibly how to derive it, another "**knowledge gap**". The second reason is because although the client has the knowledge to obtain

the information he is not willing to put the time and effort in to capture it. The latter is another **attitude problem**, but in relation to information management, not task completion.

The consultant is also assessing the management capability of the client across a range of areas including pasture management, herd nutrition, mating management and so-on (Table 13). To assess the management capability of a client, the consultant uses four benchmarking type processes. First he compares the client's decision making processes against what the consultant considers best practice. Second, he compares the client's assessment of the state of the farm's resources (e.g. post-grazing residuals, average herd body

condition, the live weight of the replacement heifers, cow intakes, supplement feeding levels etc.) with the consultant's own assessment. The consultant is looking for situations where what the client is saying does not line up with what the consultant is observing in the field. Third, the consultant is also looking for discrepancies in relation to what the client says he is doing and what he is actually doing. For example, a particularly important area that he assesses is in relation to grazing management and in particular, the management of the grazing rotation. Discrepancies may occur between what the farmers says he is feeding the herd and what he is actually feeding them. This may be because the farmer has not assessed the amount of dry matter available to the herd based on the pre- and post-grazing residuals and the area grazed per day. Often discrepancies occur around the grazing round. A client may say they are on a 23 day round, but when the consultant divides the effective area of the farm by the round length, he finds the client is not providing the correct area per day that equates with a 23 day rotation. The consultant stated that one would be surprised how often problems in relation to daily pasture allocation or area allocation occur on the farms that he visits. The other issues the consultant often identifies is the variability in daily feed allocation, either because supplement is not fed consistently or because of pasture or area allocation problems. Many of his clients are not feeding their herds consistently from day to day. Fourth, the consultant compares the client's physical performance against district benchmarks (MS/cow, MS/ha, MS/cow/day). The consultant uses these four processes to classify the client's management capability (poor, average, good) across key areas of management such as grazing management or mating management.

He also uses the information to identify if the client has a "**knowledge gap**". That is, an area in terms of management that they do not have good knowledge about. Secondly, he is using these processes to identify where the client, or sometimes his staff have an "**attitude problem**". An attitude problem occurs where the client (or his staff) has the knowledge to manage the production system properly, but do not care about doing it properly. For example, a client may know the target live weights for replacement heifers and the importance of heifer rearing in relation to milksolids production. However, despite this knowledge, he chooses not to put time into monitoring the performance of his heifers when they are away grazing to ensure these targets are met. It is important that he distinguishes between these two problem types because the interventions required to solve these problems are quite different. One involves providing the client with the knowledge so that he can remedy the problem area, whereas the other involves changing the attitude of the client (or staff member) to remedy the problem.

The consultant is also comparing the quality of the client's resources against industry standards and benchmarks. This may be in terms of the quality of his pastures, the nature of the soils and the levels of soil fertility, the quality of the herd, particularly in terms of BW, PW and the amount of culling the client undertakes. Classification of the resources is also used to identify constraints. For example, classification of the soils might indicate a wintering constraint (heavy, poorly drained soils) or a summer pasture growth constraint (light, free-draining soils). The consultant also assesses the quality of the client's infrastructure (Table 13). This is an important area and includes the size and nature of the milking shed, the race system, the water supply, the fencing or subdivision, the effluent system and other infra-structure such as feed pads. This information may highlight constraints or problems. The consultant stated that on farms that have specific problems that may be overcome by specialised infra-structure he will assess if they have this type of infra-structure and the quality of the infrastructure. For example, on farms with heavy or poorly drained soils, the consultant will assess the drainage on the farm. On farms that are in areas that experience drier summers or that have shallow light soils, he will ask if they have irrigation and the nature of the irrigation system. As such, the consultant is collecting information about the standardised infrastructure on a client's farm and also any specialised infra-structure that is required because of the nature of the land resources (soil type, climate).

A key focus for the consultant is the structure of the farming system and the policies the client is operating. When the consultant talks about structure, he is talking about what type of system is the client running. To help build a picture of the client's production system, the consultant classifies their systems type based on supplement use using the DairyNZ systems 1 – 5 classification system (Table 13). The consultant is also comparing the production system across a range of key performance indicators to classify the farming system. This includes farm size, herd size, milksolids/ha, stocking rate, and milksolids/cow. The consultant classifies

the first two as small, average or large and the latter indicators as below average, average and above average for the district and farming system type. The consultant has performance data benchmarks by district and by system type that allows him to do this. Because the consultant is observing the state of the farm at one point in time, he has to ascertain if that state is typical or atypical for the farm. As such, he is assessing if the observations he makes on the day of the visit are typical for that farm or if they are atypical for some reason. For example, the farmer might have the herd in a poor paddock on the day of the visit and the herd are underfed and leaving behind post-grazing residuals that are sub-optimum.

The consultant is also classifying the farm in terms of financial performance and he has a range of indicators which he uses to do this (Table 13). Again, he can use these to classify the farm as below average, average or above average. However, much of the classification of the financial state of the farm business is not completed during the first visit because the consultant does not undertake the accounts analysis until after he returns to the office. He does collect some financial information such as debt levels during the first farm visit. During the accounts analysis, he is classifying the performance of the farm in relation to three key areas: 1) liquidity, 2) profitability and 3) solvency.

7.1.7.2.6 Problem diagnosis

Most farms have a wide range of problems that the consultant could diagnose, but given he has only half a day on a client's farm, his diagnostic process must be time-efficient to do this he limits the scope of his problem search using a range of techniques (Figure 14). He will focus on issues that could be a problem for the season and the district in which the client is farming. The consultant stresses that it is critical that he does focus on the issues the client believes are important. The consultant also uses his 4 – 6 key performance indicators to provide a preliminary diagnosis which identifies other problems (or opportunities) facing the client. Finally, the consultant determines what motivates the client in relation to the levels of management (Strategic and/or Tactical) and this will also focus his diagnosis. These scoping mechanisms use different processes. For seasonal issues, the consultant just has to classify the season in which the visit occurs. He then draws on his mental schema which set out the likely problems that will confront a client during that particular season. Similarly, the consultant has to classify the district or sub-district that the client's farm is in. He can then access a mental schema that sets out the likely problems a client in that district might face.

The consultant uses direct questioning in combination with triangulation procedures to determine which issues or problems are important to the client. In contrast, the consultant estimates the key performance indicators from information provided by the client and this often involves a simple calculation (e.g. calculating milksolids production per hectare or per cow). The consultant then classifies the farm based on these key performance indicators. For herd and farm size he classifies them as small, average or large and for production indicators (MS/ha, MS/cow, stocking rate) he classifies these as below average, average or above average. These classifications are then used to infer potential problems. As such, the five methods the consultant uses constrain the potential problem set that he has to consider down to a much smaller problem set that is relevant to the client. This reduces both information collection and diagnosis time.

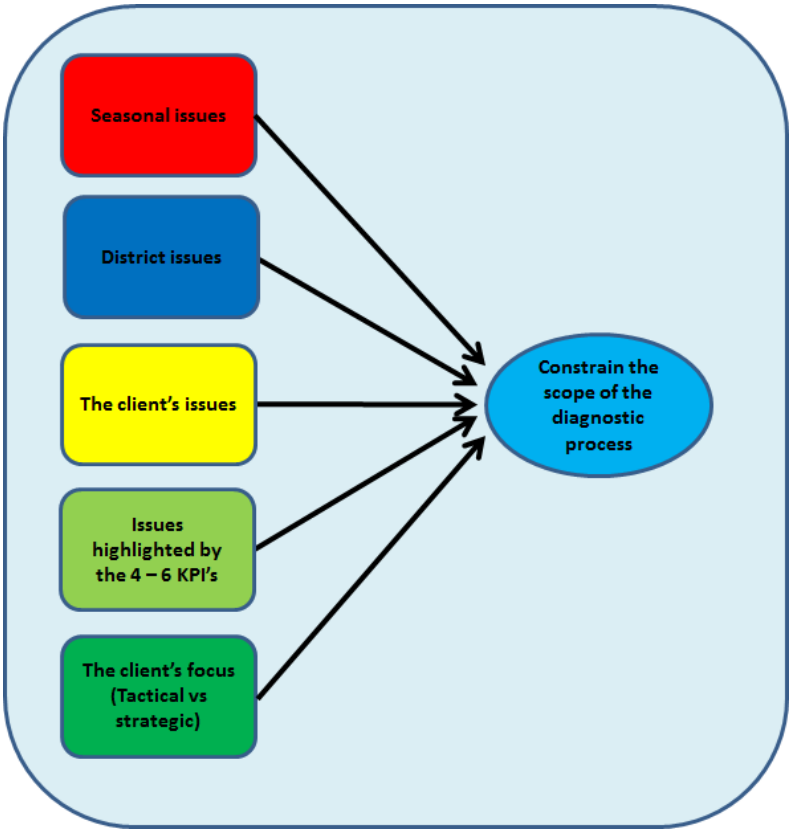

Figure 38 The factors that constrain the consultant's diagnostic process

The consultant uses a range of processes to diagnose problems on-farm. For district and seasonal issues, he hypothesises likely problems and then collects information to confirm or refute the existence of such problems. Similarly, for the problems identified by the client, the consultant will hypothesise the causes of these problems and then gather information to confirm or refute that a) the problem exists and b) the cause of the problem. To quickly identify issues the consultant relies on his four to six key performance indicators. He separates his indicators into technical indicators and financial indicators. Using these indicators, the consultant "gets a feel for what is going right, or what is going average or what is not going right". The technical indicators can be used easily on the day of the visit, but the consultant has to obtain the client's accounts and take them back to the office after the visit to derive the key financial performance indicators. As such, during the first consultancy visit the consultant will not undertake any financial analysis. Two of his key performance indicators reflect the scale of the business, i.e. farm size and herd size. When the consultant considers a client's farm size (or herd size), he also infers the amount of labour they require. If it is a large farm, the consultant will infer that they are employing a number of staff. This will trigger him to start thinking about how well they are managing their labour, what systems they have in place. Labour adds another level of complexity to the farm business. As such he will hypothesise possible problems the client might have with labour and collect information to confirm or refute his hypotheses during the farm visit. Finally, the consultant classifies the client as interested in strategic or tactical levels of management. This constrains which problems the consultant will investigate. If a client is only interested in strategic management, the consultant will only focus on strategic problems and vice versa.

The consultant uses his other key performance indicators in combination with his classification of the client's system type (1 – 5) and information about the location of the client's farm to help him "place" or "locate" the client in terms of their performance. In effect, he has benchmarking values for each district and each dairy farming system type that allows him to classify if the farmer is below average, average or above average for each of the performance indicators. First he calculates a key performance indicator (Figure 15). He then uses information about the farms location (district or area) and his classification of farm system type to retrieve the appropriate benchmark from memory. The consultant knows what an poor, average and good farm would produce for a particular farming system in a particular area or district. The benchmark is compared to the farm's performance level and the consultant classifies the farm as below average, average or above average. If the key performance indicator suggests the client's performance is below average for the district and that farm system type, then this will trigger the consultant to hypothesise possible reasons for this. He will then

collect information during the farm visit to confirm or refute these hypotheses. Alternatively, if the client is performing well for the district and his farm system type, then the consultant will move on to diagnose other areas where the client may have problems.

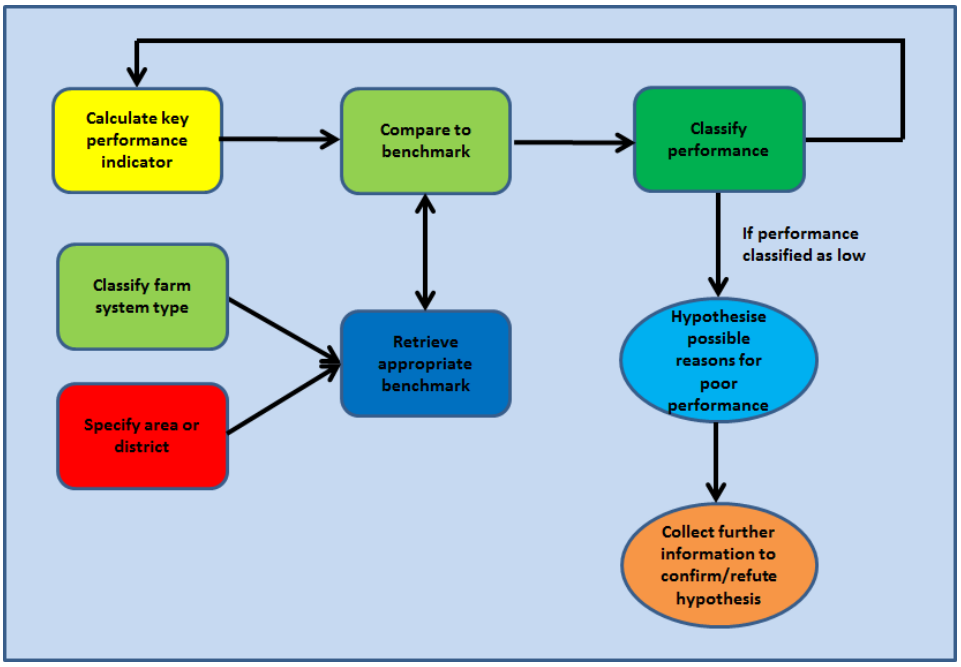

Figure 39 The use of key performance indicators in the diagnosis of problems on a client's farm

The benchmarking data helps the consultant identify where he might **add value** to the client's farm. Areas he might identify are low per cow or per hectare milksolids production. He stated that he might identify that the per hectare milksolids production is low or he might identify that for the level of supplement the client is using, the level of output (milksolids production per hectare) is quite low. If he identified this point from his analysis, he might then think about the amount of pasture per hectare the client is harvesting. If a client's physical production is quite good, the consultant then might look at their financial performance. He pointed out that some clients are not interested in financial performance. Their preference might be that they want to increase milk production.

The four to six key performance indicators are used by the consultant to infer what possible issues or problems there might be on the client's farm. The consultant stressed that this is a very limited level of analysis and that further detailed analysis is required to confirm that these areas are worth investigating (e.g. "… but then that is very light [the preliminary analysis] so you actually get into more detail …"). This is when he infers or will hypothesise possible problems and gathers information to confirm or refute his hypotheses.

The consultant stressed that the key issue is what they want him to do. He has clients that do not want to discuss finance. As such, his focus with them is the technical issues on the farm or what he calls "cows and grass". Other clients tell the consultant that if he expects them to measure their pastures, then he can leave now. He will tell them that that is fine provided they are happy to work with the consultant's visual estimates of pasture cover rather than data that is objectively monitored with a rising plate meter. As such, the consultant works around the particular preferences of his clients.

Once the consultant identifies the issues the client is interested in, he has a set of indicators around each issue that he uses for diagnostic purposes (e.g. peak milksolids production per cow, farm working expenses per kilogram milksolids, pasture dry matter harvested per hectare) (Figure 16). Around these indicators, he also has a set of factors that he can observe on the farm inspection to obtain an indication of whether the client manages these areas well or poorly. In effect, the issue or problem triggers the consultant to identify a set of indicators and from these he infers the range of factors he needs to observe on the farm inspection. For example, if the client is interested in improving profitability, then the consultant knows that pasture dry matter harvested per hectare is important. The consultant will then observe the client's pastures and assess if they are good ryegrass pastures, whether they are full of weeds, whether they have been badly pugged or if they

have a low plant population. From this analysis, the consultant can tell the client if there is scope to improve the farm system in terms of pasture dry matter grown and harvested per hectare. The consultant also stated that he may find that the client is performing well in relation to some of the indicators he analyses. In this situation, the consultant will tell the client that his performance is very good and there is limited scope for improving it.

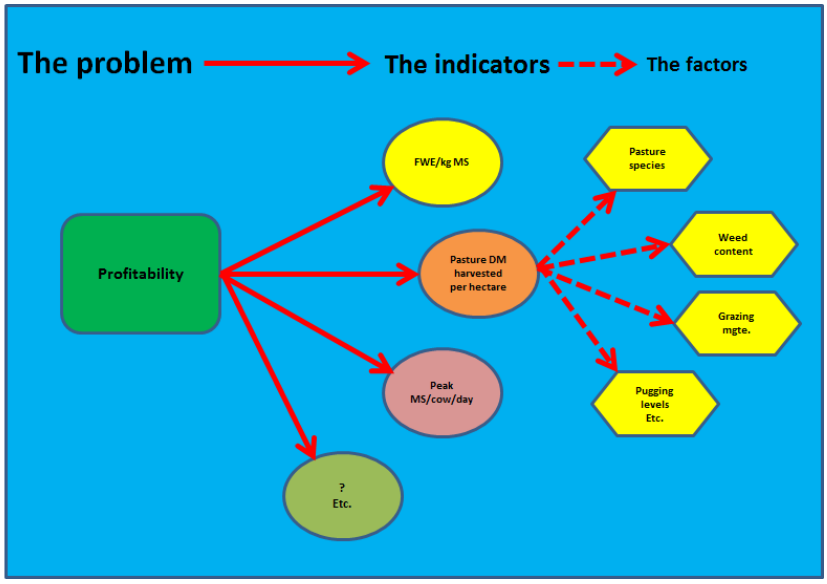

Figure 40 The diagnostic process used by the consultant

The process in Figures 9.4 and 9.5 is also set out as a set of steps in Figure 17. The consultant verifies with the client the issues or problems the client specified during the preliminary discussion. The consultant hypothesises possible drivers or causes of the problem. He then estimates key performance indicators associated with the problem and compares these to industry standards or benchmarks. He then infers or hypothesises other indicators or factors around each of the key performance indicators and collects data on each of these during the farm inspection. These observations are compared to industry standards or benchmarks to either confirm or refute the existence of the problem and or its cause. If the problem and its cause are identified, the consultant identifies an area for improvement and sets out a programme of activities with the client that will do this.

1. Verify issues or problems identified during the preliminary discussion
2. Hypothesise possible drivers of the issue or problem
3. Estimate key performance indicators associated with the issue or problem and compare to standards
4. Infer other indicators or factors around each of the key performance indicators
5. Collect data on these indicators through observations made during the farm inspection
6. Compare the observations to industry standards or benchmarks
7. Confirm or refute the existence of the problem and causes of that problem
8. If the problem and cause are confirmed, this identifies opportunities for improvement and the consultant sets out as a programme of activities to achieve this with the client

Figure 41 The process the consultant uses to diagnose and solve problems on a client's farm

An important finding from this study was that the consultant uses the information from his classification of the client's (and staffs') management capability in key areas to identify if the client has a "**knowledge gap**". That is, an area in terms of management that they do not have good knowledge about. Secondly, he also uses this information to identify where the client (or sometimes his staff) has an "**attitude problem**". An attitude problem occurs where the client (or his staff) has the knowledge to manage the production system properly, but do not care about doing it properly. For example, a client may know the target live weights for replacement heifers and the importance of heifer rearing in relation to milksolids production. However, despite this knowledge, he chooses not to put time into monitoring the performance of his heifers when they are away

grazing to ensure these targets are met. It is important that he distinguishes between these two problem types because the interventions required to solve these problems are quite different. One involves providing the client with the knowledge so that he can remedy the problem area, whereas the other involves changing the attitude of the client (or staff member) to remedy the problem. As such, a key finding from this study is that the consultant is often classifying the cause of a problem as either a **knowledge gap** in the client's understanding of dairy farm practices or an **attitude problem** where the client or one of his staff have the knowledge, but are not motivated to utilise such knowledge in a constructive manner. This is an important distinction because the solutions to these two types of causes are quite different. For the former, the consultant seeks to improve the knowledge of the client. For the latter, he seeks to change the client's attitude. The consultant stated that the biggest resource on the farm is the person. However, he said that the type of advice he gives to a client may differ considerably even if two clients farmed next door to each other with very similar resources, the advice could be quite different because they are different people.

Some of the consultant's diagnosis is not undertaken during the first consultancy visit. This is because the consultant does not undertake any accounts analysis until after the first visit as previously stated. The consultant obtains the client's accounts to work out the cost of milk production (farm working expenses/kg MS) if the client is interested in improving their profitability. He needs to take the accounts away to adjust the raw data for factors like changes in stock numbers, changes in feed inventory and so-on. For the consultant, the cost of production and pasture harvested per hectare are the key drivers of profitability for New Zealand dairy farms, not milksolids per cow or milksolids per hectare. As such, it is important that he estimates these key performance indicators for his clients. These indicators are then used to assess if the client has a problem in that area and the results of the analysis are discussed at the next visit.

During the first follow-up visit, the consultant will set out his findings from his financial analysis if the client is interested and then work through these with him. He will also ask them to enter their accounts data into Dairybase. If the farmer is interested in profitability, the consultant would start with his important high level key performance indicators and then break these down into their components and each time he is comparing these figures to benchmarks to determine if the client is average, below average or above average for a financial indicator.

The study highlighted that the consultant uses considerable expertise to diagnose the problems associated with a client's business. However, the results also highlighted that it is not just the diagnostic process that is important, it is when and how the diagnosis is put across to the client that is also important. This is because of a number of reasons. First, the consultant is never dealing with perfect information and he is not the problem owner, so there is always the risk of misdiagnosis. Second, identifying problems about a client, his family and his business has to be handled **tactfully**. This process places the client in a **vulnerable** position and a consultant has to be sensitive to this. Thirdly, much of the consultant's **professional reputation** hinges on his diagnostic ability and so he must take steps to preserve his reputation during this phase of the problem solving process. The following sections cover some of these points.

The consultant stressed that he does have to make sure his diagnosis is correct before he states it to the client. He stated that "I am not a bull in the china shop because you have got to make sure you have got it right [the diagnosis]. Yeah, be careful before you jump [make a diagnosis]. If you jump, it might be out of it [the consultant-client relationship]". When reporting on problems, other than those highlighted by the client, that he has identified from his diagnosis, the consultant will do this in a positive way and avoids what he calls the "**blame game**". For example, he might notice that the client's herd does not have a high number of days in milk. However, he will mention this in a positive way so that the client does not feel that he is being "blamed" for not achieving a high number of days in milk. Normally he will state this as an opportunity e.g. "I feel there might be scope for increasing the number of days in milk by ….". This is important for maintaining a positive relationship with the client and ensuring good rapport.

When diagnosing a potential problem, the consultant also classifies if the problem is a **sensitive** or **non-sensitive** issue with the client. He identifies this from verbal and non-verbal cues provided by the client around the problem area. Failure to handle sensitive topics (e.g. poor performance of a family member) tactfully and with patience can result in a consultancy contract being terminated. As a consequence, the consultant will discuss sensitive issues with a client differently to non-sensitive issues. For non-sensitive problems, the consultant can be direct. However, sensitive issues must be dealt with tactfully. The consultant stated that to deal with these tactfully requires patience. The consultant either waits for an opening or an opportunity to discuss the issue or he will "plant a seed" with the hope that it will germinate over time. This is often done by leading the client or inferring that there is a problem, but not specifically citing what the problem is. The consultant pointed out however, that "the better you know a client, to a degree, the more brutal you can be and get away with it". As such, building strong rapport with a client allows the consultant to be more

direct about the issues facing the business. Often with clients he knows well, the consultant will say something like "you're not going to like hearing this from me, but …", or "Do you really want to hear the truth?". And then he would specify what the sensitive problem was.

The consultant provided an example of a sensitive father and son situation where the son was performing badly. Rather than directly stating that the client's son was poor at managing staff, the consultant used examples from other clients who employed their sons to support his argument. So he might mention that another client who has sons in the farm business has found that they are not very good leaders of people. This client had changed the sons' roles so that they were not leading the business, but they were operating in an area that was their forte. In this instance, the consultant is providing an example from another client so that he does not have to explicitly criticise the client's son. He stated: " … so you use examples without saying your son's an idiot". The consultant deals with a lot of farm families, so he is often faced with this issue.

During the farm inspection, the consultant tends to allude to potential problems, but he does not go into these in any detail. He does this to provide the client with an indication of the insights he is gaining about areas where the farming system could be improved. In effect, he is **sensitising** the client to potential problems. During the problem resolution phase, once he has set out his diagnosis, the consultant asks the client for his views on his findings. This provides the consultant with feedback on his diagnosis. The client may agree with the consultant. Alternatively, the client may say that he does not know. At this point the consultant will explain why he thinks that particular area is a problem. Alternatively, the client may disagree. If this occurs, the consultant asks the client to elaborate and explain why he does not agree. In some situations, because of additional information provided by the client, the consultant might revise his diagnosis. For example, he may change his diagnosis because he learns that his expectations about production levels were too high for that geographical location. He would then tell the client that, for the conditions, maybe the resource is performing well and there is limited scope for improvement. However, he stressed that he does not give up on his initial diagnosis easily ("But I don't give up an idea quick, that's one thing, I'm quite stubborn. I don't if I have an idea, I don't give it up that quick, I don't die".). He will change his preliminary diagnosis if the client provides information that refutes his initial hypothesis and shows him that he has drawn a wrong conclusion. This is why he asks them to explain why they do not think his preliminary diagnosis is correct. This question allows him to identify additional information that he has not had access to up until that point.

During the problem resolution phase of the visit, the consultant may identify problem areas that he thinks will improve the client's business, that are **not of interest** to the client. The consultant feels obliged to explain the importance of these problem areas to the client and the impact they have on the productivity and profitability of the business. He tells the client that whether or not they address these issues is their call because it is their business. He does this because he has the client's best interest at heart. He also does it because he is protecting his reputation. He does not want a client to come back to him and say, why did you not tell me this area was an important problem for my business. To **protect his reputation**, he makes sure his clients are aware of all of the problems (or opportunities) confronting their business. He stated: "That's a bit of mana, a bit of business, being smart in your business, because that is what your business is. And so yeah, you guard your reputation". The consultant stressed that it is critical for a consultant to build and protect his reputation (e.g. "If you are not interested in your reputation, well you don't give a rats"). The consultant stated that one is only as good as their last job and that a consultant's reputation is critical for their survival as a viable business. The consultant needs the bulk of the clients he deals with to be happy with his work because "bad news travels fast". His worst case scenario is that a client states that he is not providing him with anything new. In this situation they might move on to another consultant or they may have changed their objectives and want input from a different source.

The consultant gave the example of a client whose grazing management was poor and he had recommended that he improve the management of his pre- and post-grazing residuals, but the client had not shown interest in this. The consultant stated that either he had not explained the benefits that accrue from improving grazing management well enough or the client was prepared to forego an increase in performance to avoid having to undertake the additional tasks that would be required to achieve the improvement. If it is the latter, the consultant will then move on to the next opportunity he has identified. However, prior to doing this, he will stress the cost to the client of not refining his grazing management. He also gave the example of a client who stated that he wanted to improve profitability, but he did not want to have to use a rising plate meter and undertake pasture scoring. The consultant told the client that he had two choices, he either did the pasture monitoring or he accepted the consultant's rough estimation of his pre- and post-grazing residuals and average pasture cover. The consultant stated that asking a client to formally monitor pasture cover levels is not just a simple activity, because it can bring about a range of other **behavioural changes**. For example, if the client does begin monitoring pasture cover formally, he will also be able to tell the consultant not only his average pasture cover, but also specify his feed wedge and the shape of the curve in terms of his distribution of pasture

cover. The consultant tried to convince the client to adopt formal pasture monitoring, but he stated that he can only push it so far and if they are not interested, then he will back off. Otherwise he risks losing the client because he is not providing the service the client wants. He stated: "Because if I am barking up the wrong tree and he's got very little interest in that tree, then our association may not last that long. Because they will come away and think that's not really what I wanted". This is why the consultant stressed that it is important that he understands what the client wants and that he monitors his verbal and non-verbal communication to ensure that he identifies what the client in interested in and not interested in.

7.1.7.2.7 Determine, analyse and choose alternatives

Once the consultant has determined the nature of the problem and its cause, he has a set of solutions associated with each problem type. Prior to this he has classified the client in terms of their broad interest in terms of the levels of management. He has clients that are only interested in **strategic** issues, others that are only interested in **tactical** issues and clients that are interested in both. These interests focus his information gathering and diagnostic processes such that for some clients, he will only determine strategic options, for others it will only be tactical options and for the remainder, it will be both. Similarly, at a high level, the classification of the nature of the problem is important in determining the nature of the solution. The consultant classifies the cause of problems into **knowledge gaps** and **attitude problems**. The solutions to these two types of problems are different. For the former, the consultant must close the knowledge gap by teaching the client about the problem area. This would include an explanation of the underlying theory or principles associated with the problem and then a discussion of practical solutions for overcoming the problem. In contrast, for an attitude problem, the consultant must change the client's attitude. As such he has to put a case to the client to demonstrate the impact his attitude (or his staff's) is having on the farm business in order to persuade them to improve their attitude.

For a knowledge gap problem, the consultant has a set of solutions associated with each problem type. Each of these options has associated attributes (cost, cash flow, labour and capital requirements and so-on). The consultant uses information he has collected during the farm visit (goals, attitudes, constraints, etc.) to screen these options and select a suitable option that is tailored to the client's situation. For example, the problem might be low profitability and the reason for this is below average levels of pasture dry matter harvested per hectare. The consultant has identified that the farmers grazing management (pre- and post-grazing residuals and rotation lengths) are sub-optimal. As such, one solution to the problem will be to improve the client's grazing management. The consultant may also consider the technologies the client is currently using that impact on the amount of pasture grown and/or harvested such as gibberellic acid, nitrogen, pasture species, drainage and the use of a feed pad. This may highlight opportunities the client is not currently using. The consultant will then screen these options to tailor them to the client's situation. For example, the client may not want to use nitrogen because of environmental concerns or drainage may not be a suitable option because of capital constraints due to high debt levels.

To analyse changes to a farm business, the consultant stressed that one has to have a **holistic** understanding of a farming system. This means that a consultant has to understand the interactions that occur between sub-systems within a farming system so that they can realistically predict the impact of a change on the production and profitability of the farm business. This is a key skill for a farm management consultant. He provided the example of the importance of a holistic understanding of farming systems where a client wanted to improve per cow production, but was operating a system 2 farm and did not want to bring more feed into the system. The consultant determined that without a change in feed input levels, the client would struggle to improve per cow production and recommended he stay with the status quo.

In terms of the selection of an option, the consultant stressed that his key criteria is **profitability**. As such, the consultant uses profitability as the indicator of whether or not a change to the farming system is beneficial to the client. This criteria is only used after he has screened the set of possible solutions down to a smaller set of solutions that are suitable for the client. The consultant stressed that a novice consultant has to be very good **analytically**. They need to be able to analyse the impact of a change holistically and identify the key drivers of systems performance. He believes that there is a lot of "fuzzy thinking" in the consultancy industry at the moment. The consultant prides himself on "being very analytical".

The consultant is concerned that some consultants do not use profitability as their key criteria for determining if a change is beneficial to a client, rather they often use production. He provided the example of a consultant advising a farmer to increase per cow production by reducing stocking rate, but this consultant did not take into account the impact of such a change on the system or on profitability. Often these consultants recommend that a client increase his per cow production because it will dilute the maintenance feed costs and fixed financial costs associated with a cow. These consultants consider feed efficiency (kg DM/kg MS), but without considering the impact that it has on profitability and return on assets. Some consultants push high

per cow production and this approach is attractive to "cow-centric" farmers. If a client wants to improve their per cow performance, the consultant will tell the client that he can help them do this, but that pursuing this strategy may not be the most profitable system the client could run. It is important that he makes it clear to the client that a particular strategy comes at a cost to the client and the client must be made aware of this. This is an ethical consideration for the consultant because he believes that at all times he must have the client's best interests at heart.

The consultant often has situations where a client wants to make a change that is not profitable to the farm business. These changes are driven by **goals** other than profitability. For example, a client might want to improve per cow production for **status** reasons because in his area good farmers are associated with high per cow production, a **social norm**. Alternatively, a change might be driven by **lifestyle goals** such as in a shift to once-a-day milking. In these situations, the consultant will analyse the change in profitability associated with the change and then highlight to the client, that if he pursues this change it will cost him $X,000 per annum. He said that he always stresses to his clients that he will always come back to the profitability of a change unless they tell him not to. A key rule he operates by is that he will identify the most profitable decision for his client unless there are other goals that over-ride this. If a change is not going to impact on profitability one way or the other then he will tell the client it really does not matter what they do. However, behind any advice the consultant provides to a client is a solid analysis of the profitability of the change. As such, to do this job well, a consultant has to be logical and analytical. If they are not, the consultant believes that consultancy is probably not the job for them.

The consultant stated that he must ensure that the client's "expectations" about a possible change to the farm system are clear and line up with reality. For example, if the client wants to increase per cow production, but the consultant knows that this change is unprofitable, he will set out the cost to the farmer of adopting the strategy. He does the same for clients who are considering changing to once-a-day milking. He will show them that although the change will provide them with more time and a better lifestyle, it comes at a cost relative to twice-a-day milking. This ensures that the client is clear about what impact a particular change will have on the profitability of his business. He stated: "That's right, so they are left in no uncertain terms that they may not be making the most profitable decision or action". Ensuring that a client's expectations about the impact of a possible change, line up with reality is an important aspect of consultancy.

Once the consultant has highlighted the problems that he has identified, he then initiates a discussion with the client about these points. As they work through the discussion, the consultant will continue to **reinforce** the main points he has identified as important to the client. As such, the consultant is continually reinforcing the points he has made to demonstrate where he can **add value** to the client. The consultant describes the discussion as almost a process of **negotiation**. The consultant has an opinion about where the farm system can be improved and the client has an opinion. The consultant then has to convince the client to "**buy in**" to the consultant's view that this is an area where he can improve. If the client does not buy in, this tells the consultant that either he has not done a good job convincing the client that this is an important area where he can improve the farm system or it is an area the client is not interested in. If it is the latter, the consultant will move on to other opportunities he has identified, but he will come back to the issue from time to time during his repeat visits.

When providing advice to the client, the consultant uses these "third person references" so that "it is not XXXX [consultant's name] saying this, rather it's based on a scientist saying this". It provides more weight to the consultant's advice. He provided an example of where he had diagnosed that the farm had a problem with low profitability and that he had recommended that the client place his accounts on Dairybase. He would then use a "**third person reference**" or some research article to justify the use of DairyBase to the client. The "third person reference" is someone who is recognised in the industry for their expertise in the area the consultant is discussing with the client.

A key attitude for the consultant when providing a solution is that: "it is the client's decision". He stated: "I never get upset for whatever decision the client makes". In part, this is because it is the client's decision, but the consultant also stressed that there is often information or objectives that he does not know about that have influenced their decision not to take his advice. The consultant find that his client's vary in terms of how open they are about their goals and objectives. Some clients are very open, others are protective of their aspirations and others will only allow him a certain level of "closeness", but no further.

At the end of the visit, the consultant will ask the client if they have covered everything. A key point for his is that he leaves the client with something of value. He stated "you don't walk off without ticking some boxes. At this point about half of the consultants will have questions and/or topics they want to cover and the other half will not. As such, the consultant has to be flexible. The consultant stated that one cannot go into

consultancy with a recipe because it won't work. If they follow a recipe, the consultant will collect data on everything including areas the client is not interested in. This may turn off the client. It also means that the consultant will waste a lot of time and energy collecting information about areas the client is not interested in. To ensure this does not happen, a consultant has to use their ability. The consultant believes that this is why consultants are "a bit born and not necessarily totally trained". There is an art to the consultancy process.

7.1.7.2.8 Assessing professional advisors advice

Part of the consultant's job is to evaluate the advice other rural professionals (seed and fertiliser reps, veterinarians, LIC and DairyNZ staff) provide to his clients. This is not a problem solving process per se, but it is an important service that the consultant provides. In this role he is assessing or evaluating the advice other rural professionals have provided to his client. Such topics may be brought up during the discussion, post-farm inspection. As such, the consultant has to be aware of the other people providing his client with advice and where they stand in terms of credibility relative to himself. One of his roles as a consultant is to challenge the advice of such people if he believes it is not in the best interest of his client. To identify if there is a problem with the advice the client has received, he compares it to industry best practice. If there is a problem he will then raise this with the client and explain why he thinks the advice is of dubious value. To do this he will often draw on the information provided by a "**respected third person**" (e.g. a DairyNZ nutritionist) who provides objective unbiased advice ("he has no axe to grind"). The consultant builds up a "**stable**" or a **social network** of what he calls "key source people". These are people, normally scientists (DairyNZ and AgResearch) or academics (Massey and Lincoln Universities) who are important sources of knowledge in relation to dairy farming. The consultant uses the advice of such people to justify his challenge of a recommendation made by another rural professional or to support other advice he provides to a client. He will basically say to the client, Dr X said Y about the area they are discussing. The consultant said "So you can actually set someone else up to be the hard front man without being the hard man yourself".

Because the consultant is competing with other advisors in the field, he has to know where he is in the "**relationship circle**" relative to the other advisors who are advising his client. This is important because one of his roles is to evaluate the advice provided by other advisors to ascertain if it is in the best interest of his client. He gave an example of a rep advising a farmer to obtain a product from a particular company because he obtained the largest mark-up from them. In a second example, the rep recommended a much higher sowing rate than was required in order to sell more product. Other individuals that influence his client's decision making are DairyNZ consulting officers who run farmer discussion groups. The consultant would place DairyNZ consulting officers on the "outer circle of advice" because they work with farmers in a group and do not see farmers as often as a consultant. They may have some people within a discussion group that they are close to, but in general they tend to have a more distant relationship than the consultant. Therefore the consultant will have greater influence over his clients' decision making than DairyNZ consulting officers. As such, a consultant has to be aware of the other people providing his client with advice and where they stand in terms of credibility relative to himself.

7.1.7.2.9 Plan implementation

Once a problem has been identified and verified with the client, the consultant will then suggest a programme of activities that the client might put in place to improve the farming system. For the example, if the problem is in relation to pasture dry matter harvested, the consultant may recommend the development of a regrassing programme and a number of other changes to the client's grazing management. Alternatively, if the issue is low profitability, he might recommend that he take the client's accounts away and analyse them, ask the client to place his accounts on Dairybase and then look at the factors influencing the cost of milk production and pasture dry matter harvested, key drivers of profitability, over the next few visits. In this latter case, the client has yet to develop firm solutions for improving the profitability of the client's business, these will be developed over time.

7.1.7.2.10 Implementation

The consultant works with the client on plan implementation and because he is visiting most clients every 1 – 2 months, he provides them with good support during the implementation phase.

7.1.7.2.11 Evaluation

Because of the time constraints of the pilot study, little information was collected on the evaluation process that the consultant undertakes after a visit.

7.1.8 Building networks to improve the consultant's problem solving skills

The consultant spends a lot of time developing and maintaining his network of resource people. These are individuals within the industry that he believes provide useful, objective and unbiased information about key

areas in relation to dairy farming. They may be scientists and specialists from DairyNZ and AgResearch or academics from Massey and Lincoln universities. For example he has developed links with two DairyNZ nutritionists because it is an area in which he is not strong. He put a lot of effort into remaining in touch with these resource people. For example, if they are in town, the consultant will ring them and invite them out for dinner. By building a strong relationship with such resource people, the consultant can now ring these people up anytime and ask them for advice. The relationship is also reciprocal. If his resource people contact him with a request, he will make sure he undertakes that request quickly. They then view this as a favour and this makes it more likely that they will return the favour in the future. The other way to build a relationship with a key resource person is by spending time with them. This may involve inviting them out to dinner or just spending time with them when they are in the region such as going to their talks and then conversing with them afterwards. The consultant keeps very good contact with DairyNZ staff and joins them for drinks on Friday night. Social interactions over a beer or over dinner are used to build rapport between the consultant and his resource people. He stated that "social interaction is one of the best places if you want to build rapport, you don't do it formally in an office, you do it socially somehow". The consultant stated that it is easier to build rapport if one has the right personality (e.g. "you can be cheeky, some people get away with that, I use to give X a lot of hassle and she responded). The consultant puts the greatest effort into those resource people that are of most value to him. He said "I cover my biggest holes with resource people that I get closer to". The consultant wants really good advice on nutrition because it is what he calls a "hotspot", an area where there is contentious advice within the industry. In areas where he is strong, he does not need to develop a resource base to the same degree. For other resource people that he only uses occasionally, he will make sure they know who he is. When dealing with these resource people, he tends not to ring them, rather he visits them at their offices. Normally such visits will be relatively short and the consultant will have a few key questions that he wants answered. Another important source of information for the consultant comes from bankers. To build networks in this area, the consultant goes along to events in which he expects bankers to be involved. This might include Fonterra events, Awards dinners, the Institute of Primary Industry Management activities for rural professionals and so-on. The consultant would spend about one hour a week building and maintaining his networks. He stated that once a relationship is established, it takes less input to maintain.

The consultant also needs to identify areas that he thinks will be important in the future and build networks in these areas. An example of this is the environment and in particular nitrogen leaching. The consultant says that for emerging issues "you make sure you are up there at the front of an issue". A key aspect that clients' value is that he keeps them informed of **emerging industry issues**. Knowledge of emerging issues can enhance the consultant's **reputation** where he has identified that a particular issue is emerging and will be important to the client and then several months later the client has had to deal with the issue. The client then knows that the consultant is knowledgeable in that area and he will then seek advice from him. Because his client's expect him to be knowledgeable about emerging industry issues, he has to spend time developing knowledge in this area. Some of this will be done through his **existing networks** or he may begin to build **new networks** in areas where he does not have the contacts.

The consultant is also looking for new useful contacts when he attends events. His networks provide him with access to other individuals and networks. The consultant gave the example where he was invited to attend a DairyNZ workshop on grazing management. At the workshop he met a DairyNZ agronomist from Christchurch that he did not know. That individual now knows the consultant and this means that he could contact him if the need ever arose. The consultant stressed that "you've got to be social in this business, if you are not social, it doesn't help". In another example, the consultant attended a seminar on nutrition that included a range of experts that he did not know. Because he knew two of the DairyNZ nutritionists in the team, he managed to obtain an invite to dinner with them after the seminar. He can now talk to these experts at other conferences without being a stranger. In relation to training novice consultants, the consultant stressed that it is critical for them to develop a network of resource people. If they do not do this, they will find consultancy quite difficult. Novice consultants will struggle until they have developed such networks. The consultant stressed that a key issue in building networks is to ensure that he has time during the week to do this. As such, a firm that is training a novice consultant needs to allow time in the novice's schedule so that he or she can build these networks. The consultant notes that there is a trade-off between providing time for the building of networks and ensuring the trainee is generating income for the consultancy firm.

7.1.9 Meta-cognition

The most critical question the consultant asks himself at the end of a first visit is "have you absolutely nutted out what his objectives are, what are his concerns, what are his issues, have you got them crystal clear, do you know what they are?" The consultant will often repeat these back to the client to confirm that he has correctly identified this information. For example, he stated that he might say to a client: "This is my understanding of your concerns or where you think there are opportunities, or this is what I think you want from me ….". Using teachback questions, the consultant ensures that he understand these area clearly before

the end of the first consultancy visit. He stated that: "If you haven't got them clarified, you're going to be wandering in the dark with them [the client]". The other important question the consultant asks himself is has he collected all the information he needs and undertaken all the analysis that is required on the areas that are of interest to the client. He notes that some of the information he cannot obtain or analyse on the day such as that in relation to the client's financial accounts. However, he mentally assesses if he has collected enough information so that he can answer the client's concerns about the areas he is interested in. He is also mentally checking that he has identified the client's goals and objectives and their concerns correctly. He is also mentally checking that he has undertaken his analysis correctly such that it supports the conclusions he has drawn. The consultant considers what further analysis he will need to undertake and if he has the information to do so. These are examples of the consultant's use of **meta-cognition** within the consultancy process.

7.1.10 Changing social norms

The consultant noted that most of his clients still focus on production rather than profitability. He stated that "there is still a lot of mana around production per cow". This suggests that a good farmer is viewed by many in the industry as someone who achieves high levels of milksolids production per cow. It is a **social norm** that the consultant must change if he is to help the client improve the profitability of their business. As such, one of the roles of a consultant is to identify the social norms that may be limiting a client's business and change these.

7.1.11 Training novice consultants

The consultant talked about what a consultancy firm should look for when recruiting people who are relatively inexperienced. He thought that the personality type needed to be right otherwise even with all the technical skills it can be difficult for them to fit in to the job. They need to be slightly extrovert with people skills. They need analytic skills as well given the requirement to be logical but these skills alone are insufficient. Without people skills "you'll just be the smart fellow in the corner." The consultant asked the question that if one looked at the female DairyNZ consulting officers or female farm management consultants who really stand out, what are their attributes? He believes that this will be reflected in their personality type, even though he does not have the technical knowledge to classify them. The consultant believes that 70% of consultancy relies on the consultant having the right personality type and having good social or interpersonal communication skills.

It is easier in the consultant's opinion to teach someone with people skills other kinds of relevant skills such as how to do partial budgets than it is to help consultants without people skills. The consultant emphasized that it was hard for someone without people skills "I've seen people without people skills and it is hard work and it's not their natural inclination and you don't start to enjoy it." [consultancy work]. The consultant mentioned the low success rate AGNZ had with employing people in the last ten years. Part of the problem is that it is hard to help people build a network of contacts so that they get invited to farms. Once invited out to the farm, there is a 60%-70% chance of being taken on.

Consultancy firms often give new consultants project work. The consultant thought that it would be interesting to know how much work these new consultants were doing by themselves with their own clients. The trick is moving from project work to developing their own clientele. People will pick up some work but they need the time to get out and meet people at field days and discussion groups. To succeed, a new consultant needs to build up two networks - the professional network and the farmer network. He was given the opportunities to do this when he was starting out. He could then phone people and build a relationship with them. Then he would be invited come out to the farm, giving the first visit for free.

The consultant considered that working on projects was useful for trainees as well as the firm but they are short term. Consultancy firms need projects because they generate cash. The firms are in a difficult situation since they cannot function like an accountancy business or veterinary practice where they work for a number of hours with a margin on the hours. Projects can be useful for trainees as otherwise they could be underemployed for several months and move to another job (e.g. with a bank). The consultant thought that it was not enough to be just carrying out the donkey work for a senior consultant. He believed that care has to be taken to help trainees to build their own client base. The consultant suggested helping trainees to meet farmers. Alternatively, a senior consultant may be able to provide novice consultants with work for some of their clients. This has to be done carefully and appropriately. He remembered an occasion when a consultant went out to visit a farmer with a junior tagging along and got the job. When the farmer found out that the junior consultant would actually carry out the work the firm lost the job.

For those people who have not worked for DairyNZ, firms have their own training programme. The consultant stressed that employers have to help the trainees build up networks and farmer knowledge. He, himself, is able to recall the names of half the farmers in his area. A senior consultant has got to turn the junior consultant into a warm caller who cultivates contacts (e.g. through phone calls.). To up skill the trainee they

can be sent on appropriate courses. There is also a great deal of information available on the web; the DairyNZ website is a useful resource.

If the consultant was hiring trainees, he would target people with an outgoing personality and suggest that they might like to move to his firm in the next six months. He would recruit someone with a network of contacts. He would have some work on hand for them to get started and then the junior consultant could make warm calls.

The consultant would draw up a suitable development plan for a trainee with an initial assessment of their needs and requirements, what they need to develop and how to get there. A trainee can also be asked to identify their strengths and weaknesses. These can then be put to the test. So if they have gone to a discussion group, he would ask about who they spoke to, what area the farm was in, how many cows were being milked, and what the farmer was doing? With regard to assessing the strengths and weaknesses of trainees, the consultant could also talk to the people they have visited. Feedback ("you can't keep this up for too long mate") can be given to the trainee if, for example, they are shy and do not say much. A junior consultant needs to be positive when they are sure of their facts.

The key areas in which the junior employees need to be up to speed are cows and grass, soils and nutrient management according to the consultant. The trainees should have reasonable insight into soils if they have come through Massey or another Institute. There are intermediate and advanced courses on nutrition. When asked whether he would send consultants on a course, the consultant observed that nutrition training is a difficult area which DairyNZ is looking into. He himself uses his contacts when he wants advice. When asked if he would get a new consultant to spend time with these contacts he said it would depend on the topic and whether a suitable course was available.

The consultant made various suggestions about using farm visits for training purposes. A trainee could come out with the consultant a number of times, more frequently at the beginning. A consultant could do some of the following activities:

- Review what the consultant did.
- Review the letter sent to the client.
- Identify the relevant issues if these had not all been fully explained on the farm.
- Write up an account of the visit. It soon becomes obvious from this how clearly they see the situation.
- Write the letter to the client (with suitable exemplars provided).

These activities help to develop a feeling of responsibility in the trainee. The consultant believes that writing a report on a visit helps the trainee to focus and pay attention to what is happening.

To develop the trainee's analytic skills, the consultant would ask them to analyse a problem and develop the solution. The problem could arise on a farm visit or just be taken from a case study. He would provide appropriate feedback diplomatically if necessary, saying how he would himself have tackled the problem. The junior consultant might just accompany him on a visit or be delegated to do the job. Alternatively, the trainee could visit a friendly farmer to assess the situation. The visit would be free but there is still a risk if the trainee makes a bad impression. The consultant observed that this kind of situation had to be handled carefully. Some clients would not accept a trainee. He was asked about the tension between trying to get the trainee to develop their own client base and sending them out to existing clients for experience. This might give the trainee an opportunity to build up their clientele. The consultant observed that some division of a consultancy book might take place but generally trainees build up their own clientele.

The consultant thinks that trainees should be exposed other role models outside the firm. They can be asked to visit a Massey farm or TARS, (the Taranaki demonstration farms) for instance. There are all sorts of opportunities of that kind including the Lincoln University farm walk days. According to the consultant, visiting Tars or Lincoln allows observation skills to be enhanced. Trainees can see what the people in charge are doing with their grazing management, what 1500 looks like and what 1600 looks like. The trainees could be asked subsequently to describe what was happening on the farm and whether things could be done differently. Activities like these strengthen their knowledge of "cows and grass".

The consultant suggested other kinds of tasks that trainees could do:

- Play with Farmax using a farmer's data," Should this guy have grown turnips or not?"
- Use DairyBase to find examples of what is good, bad and indifferent.
- Review a client's DairyBase analysis

- Give a presentation in order to consolidate knowledge (the need to be well-prepared ensures that the trainee will learn a topic really quickly.)

Trainees are being tested and provided with appropriate feedback. According to the consultant, feedback has to be given in the right way without destroying the trainee. The trainee's personality has to be taken into account. Some people can handle comments like "Well, you absolutely stuffed that up. I haven't seen a worse job of that ever." He generally highlights the good points of an exercise and balances that with what could have been done better. With regard to providing feedback, there are courses for consultants on communication skill which can help - questioning, listening and feedback. There is also a good course on leading effective discussion groups and small meetings.

The consultant believed that the fastest learning occurs when trainees are thrown in the deep end. "I hate it like hell but it's probably the most effective. And if they hate it they'll get out." When they get stuck they can always come back and talk it over with him. The trainee, though, still has to think things through without the consultant listing the issues. Trainees can even be given the responsibility for carrying out a full analysis. These activities would take place within the framework of the development programme set up to help them become more proficient. The consultant thought people learned more by their mistakes than anything else, "So if I make a mistake I'll learn from it bloody quick; I won't make that one again in a hurry." His reputation can be on the line if a mistake is made.

With regard to resources, the consultant commented that there were plenty available. He had not developed any himself and suggested asking other people how they tackled this issue. He suggested that DairyBase could be used to find out for a large area e.g. the lower North Island; the average stocking rate, feed per cow etc. The consultant thought that this assisted fast learning. It gives the trainees some benchmarking numbers or some understanding of what it means e.g. when somebody talks about doing 1000 a hectare on sand country. The consultant would give the trainee some resources such as reference sheets, but recommended that they should be asked to hunt for resources and develop their own table. " If they have to hunt it out and print it out and develop a table out of it they own it, they've developed it, they've got it and they'll think about it a bit harder."

The development programme for an individual will have a mix of courses and on farm training according to the consultant. The balance will depend on the individual. All the technical training, though, is for nothing without the networking skills. Trainees can build up their contacts (bankers, accountants) through attending conferences, field days, and seminars. Fonterra holds meeting where rural professionals come along 3 or 4 times a year. It is getting to know bankers that is really important. The consultant, himself, currently does not put much time into networking although he still attends some events. For trainees, though, it is necessary to attend any event where there will be several farmers. This gives trainees the opportunity to meet many (up to 15) farmers in a couple of hours, "you've got them in an environment where they're warm and a bit friendly and you're not hitting on them." If a trainee makes a good impression, the farmers know that he/she is out there.

The consultant thought that the capability assessment instrument with its cover of the relevant areas, seemed appropriate for rating performance. For assessing the competence of consultants, the procedures followed by DairyNZ can also be used. They have got their whole farm appraisal system which allows areas to be ticked off.

There was some discussion about the role of a whole farm appraisal as a teaching aid. The whole farm assessment is like a huge checklist but the consultant does not go through all of it formally. Because of his knowledge and skills, he does not have to ask the questions on all topics. There is a risk that he could miss something but he usually can tell when something is not a problem and tick the area off. He does not believe that another version of the whole farm assessment needs to be developed.

The consultant understands that an analysis on DairyBase shows where "they're sharp or where they're not." This helps with the development of logical thinking and analysis skills. If he was training a new consultant, he would ask someone who owed him a favour if the trainee could be a fly on the wall with them during a whole farm appraisal. This would be useful experience for the inexperienced consultant who could be asked to write a report on the visit (whether the initial draft or a parallel version). The trainee would need to see a sample report first. Even though the trainee would meet 3 DairyNZ staff, this does not develop the field of networking in general.

On a whole farm appraisal it is usual to work with other experts. The consultant finds it easy to collaborate with someone who knows more about an area such as irrigation. He commented that he would go with the flow but might ask hard questions occasionally. The hardest area is when working with another generalist: "Well it's a bit like getting two cooks."

Finally, the consultant was asked how long it would take to develop expertise in the domain following the type of programme he outlined. It took him five years to become proficient but he believed that the process could be accelerated by 2 to 3 years if appropriate measures were taken. A new consultant at that stage would then have about to 20-30 clients. New consultants face considerable competition from people that are already established and those who want to get into more dairying. In some areas there are many consultants but not in others. There are probably sixteen to eighteen in the Manawatu. Even so, the consultant thought a good new consultant could still find clients.

7.1.12 The profession

The consultant suggested that Dairy NZ, which is already getting more involved in projects, could take on the training role for consultants like MAF used to do. The most successful way for someone to become a consultant is to have been employed as a Consulting Officer (CO) first. This provides learning opportunities (the training now lasts at least a year) as well as the chance to build up contacts. Dairy NZ could employ people that they knew would leave. According to the consultant, the role played by DairyNZ in the industry would be very important, "We've got Dairy NZ. If they played ball there's an excellent vehicle." People who worked for Dairy NZ are usually highly successful when they get going, "like it's a very strong hit rate."

If Dairy NZ want to help maintain a rural professional group or consultancy group then they should be able to make a lot of their resources available. They could invite trainees to participate in a whole farm assessment or to attend their discussion groups. The consultant suggested that building the rural network might be one of Dairy NZ's KPIs. It would not be how many people DairyNZ had at their discussion groups, it might be how many outside resource people, trainee consultants etc. attended such meetings. He commented that "you would soon see how keen they were about helping to develop consultancy skills in general when these proposals were put to them. Some COs might get a bit jumpy in case the trainees stole their clients". This did not worry his mentor, who had strong self-esteem and was prepared to open doors for the new consultant, giving him access to sources of information.

Overall, the consultant believes there is a lot of good will in the industry towards trainees and reps because it does not cost any money. This allows them the opportunity to develop their skills by attending discussion groups or a whole farm appraisal. Farmers in discussion groups are used to this situation, "well we've got another CO to train."

The consultant commented that FarmWise was also a useful training ground for a while until it was split up and became more commercial. Even so it is looking at issues such as retention and building. The personality types that stay with a firm are not that different from those in his company where money is not quite so important. Some people, though, do not want to give money to a firm such as Wrightsons when they can take the clients and keep all the money for themselves. It is risky for a firm employing new graduates or inexperienced people as they could leave after a large investment of time and money. People in their late 20s might stay. For consultancy firms one way to keep people is make them a partner. He believes the opportunities are in dairying rather than sheep and beef.

It is vital in the future to support the development of consultancy skills "because I mean it will hit the wall big time" given the age profile of the consultants in the district. Over the next ten years many of the consultants will retire. There are only one or two people below the age of 45. This means losing not only people with farm management skills but also those who could develop such skills. A lot of knowledge would go out of the door as this group of consultants retired. The consultant wondered whether DairyNZ would expand its CO services or even start a consultancy business, like FarmWise. FarmWise used to pick COs off and pay them more or give them a chance to earn more. This approach was successful. The pathway for a consultant would be from being a CO to a FarmWise equivalent and then to private practice if that is what they wanted.

The consultant believed the vacuum for knowledge will get filled one way or another, possibly by technical reps who will be biased. That is happening with Wrightsons who are employing nutritionists, and people with fertilizer and grass skills. He sees this as "a bit of salesmanship with a bit of fact." The consultant noted that even those reps who seem trustworthy might not give good advice. He recently asked a client why he was putting a high seed rate on as the research indicated that a much lower rate can be used. The farmer had been following the advice of a trusted rep for years, "you should have seen the look on his face." In the future, objective and independent people like consultants may be lost to the industry. Whilst the consultant is associated with company x, he can lie in bed and know that somebody else could not say what was wrong with his recommendation. The consultant does not like to be wrong and has the best interests of the client at heart.